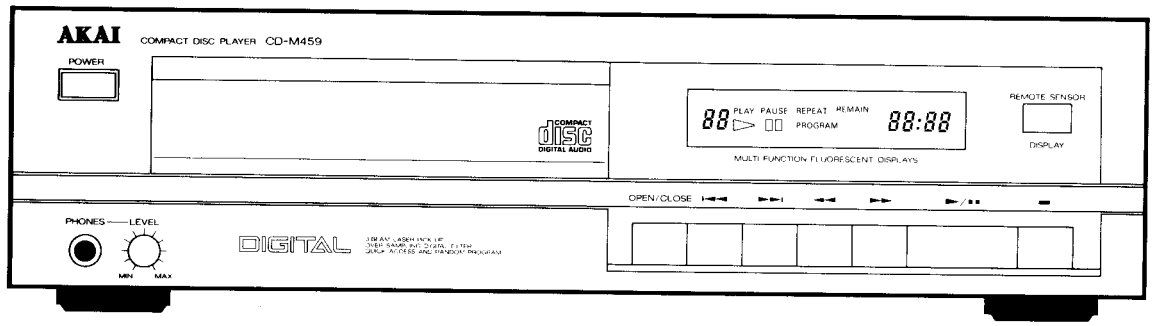
CD-M459/R
CD-M659

AKAI SERVICE MANUAL



MODEL CD-M459

COMPACT DISC PLAYER

MODEL CD-M459/R
MODEL CD-M659

SPECIFICATIONS

MODEL CD-M459/R

Pick-up system	3 beam Laser pick-up
Sampling frequency	44.1 kHz
Digital filter	16 bit, 2 times over sampling
D/A converter	16 bit linear
Error correction system	Cross Interleave Reed Solomon
Number of channels	2 channel stereo
Frequency response	5 Hz to 20 kHz ±0.5dB
Dynamic range	90 dB or more
S/N	98 dB or more
Total harmonic distortion	0.005% or less
Wow & flutter	Less than measurable limits
Output level	
Analog	2 V (0 dB)
Digital (Coaxial)	0.5 Vp-p/75 ohms
Headphone output level/Impedance	8 mW/32 ohms
Power requirements	220 V, 50 Hz for Europe except UK 240 V, 50 Hz for UK and Australia 110 V – 120 V/220 V – 240 V, 50 Hz/60 Hz convertible for other countries
Dimensions	350 (W) × 96 (H) × 345 (D) mm (13.8 × 3.8 × 13.6 inches)
Weight	3.8 kg (8.4 lbs)

Standard accessory
- Connection cord 1
- Remote control unit (CD-M459R only) 1
- Operator's manual 1

MODEL CD-M659

Pick-up system	3 beam Laser pick-up
Number of channels	2 channel stereo
Wow & flutter	Less than measurable limits
Optical output level	−22 dBm
Power requirements	220 V, 50 Hz for Europe except UK 240 V, 50 Hz for UK and Australia 110 V – 120 V/220 V – 240 V, 50 Hz/60 Hz convertible for other countries
Dimensions	350 (W) × 97 (H) × 345 (D) mm (13.8 × 3.8 × 13.6 inches)
Weight	3.9 kg (8.6 lbs)

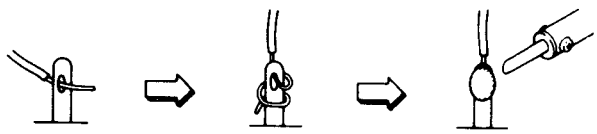
Standard accessory
- Optical fiber cable 1
- Oparator's manual 1

*** For improvement purposes, specifications and design are subjected to change without notice.**

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVING

1. Parts identified by the ⚠ (*) symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be headphone jacks line-in-out jacks etc. more than 2.2 M ohms (ground terminals, microphone jacks).

★INFORMATION

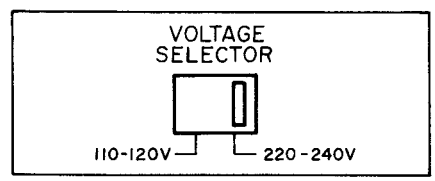
SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
[A]	USA
[B]	UK
[C]	Canada
[E]	Europe (except UK)
[J]	Japan
[S]	Australia
[V]	W. Germany only
[U]	Universal Area
[Y*]	Custom version

VOLTAGE CONVERSION ([U] Model only)

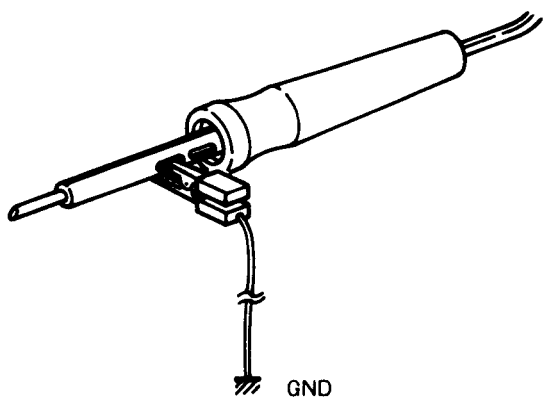
Before connecting the power cord. Set the VOLTAGE SELECTOR located on the rear panel with a screwdriver so that the correct voltage is indicated for your area.



PRECATIONS IN REPAIRING

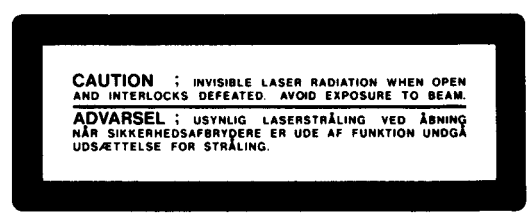
When repairing or adjusting the unit, please note the following points.

1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the mechanical part or P.C. Board is removed for repair or adjustment, make sure that there are no metal objects in the narrow gap between the P.C. Board or the mecha parts and the base.
3. The micro-computer and the CD signal processing IC's can be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration below.
4. Do not loosen any screws in the pick-up block. When handling the Pick-up block, please refer to the points to NOTE when replacing the pick-up block.
5. Keep safety from hazardous invisible laser radiation, DO NOT watch the laser beam (objective lens) directly.
6. Modes for the same countries, laser warning labels are affixed on the unit and inside of the unit, as shown below. Read it carefully for your safety, when replacing or adjusting the unit.



[DENMARK and UK]

A Label affixed on the Rear Panel of the unit


CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.

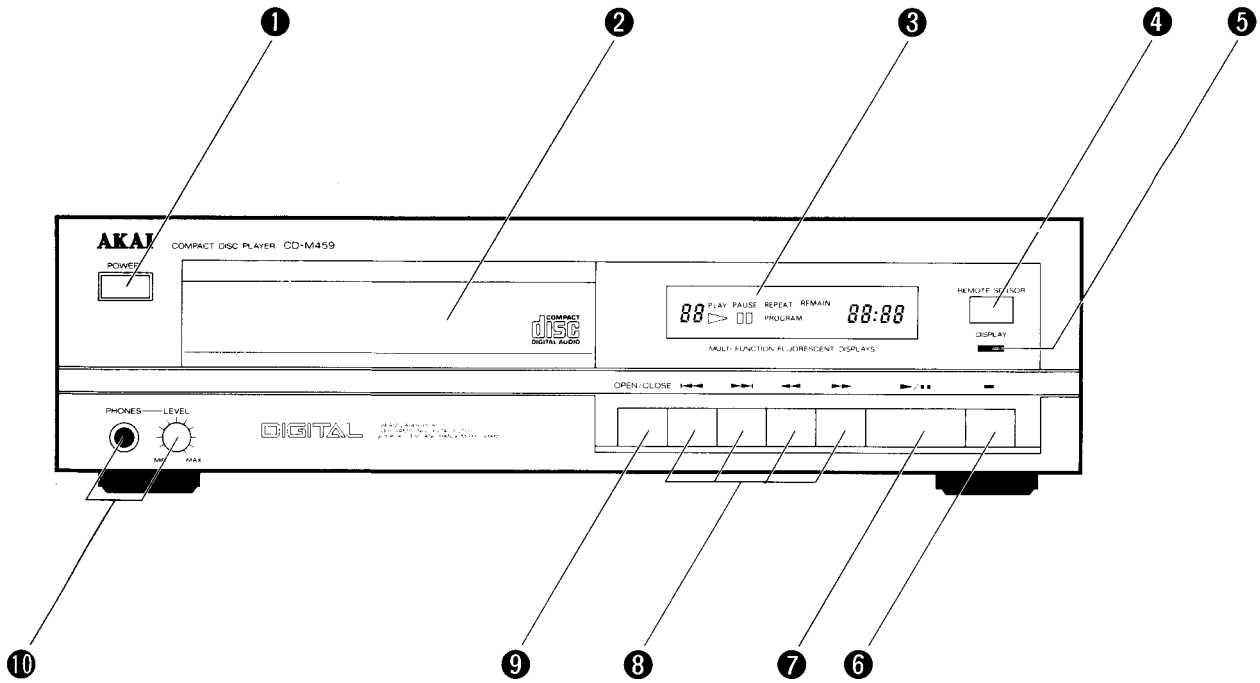
A Label affixed on the Disc clamper inside of the unit

[USA]

A Label Printed on the Rear Panel of the unit

A Label affixed on the disc clamper inside of the unit

I. CONTROL



❶ **POWER Button**
To turn the power on and off.

❷ **Disc TRAY**
Load a compact disc here.

❸ **FL (Fluorescent) Display**
Tells you what the CD player is doing.

❹ **REMOTE SENSOR Window**
For reception of the remote control signal from remote control unit. Keep away from strong light and direct sunlight as this will interfere with the remote control function.

❺ **DISPLAY Button**
To switch between the remaining playback time display and the elapsed playback time display.

❻ **■ STOP Button**
To stop playback.

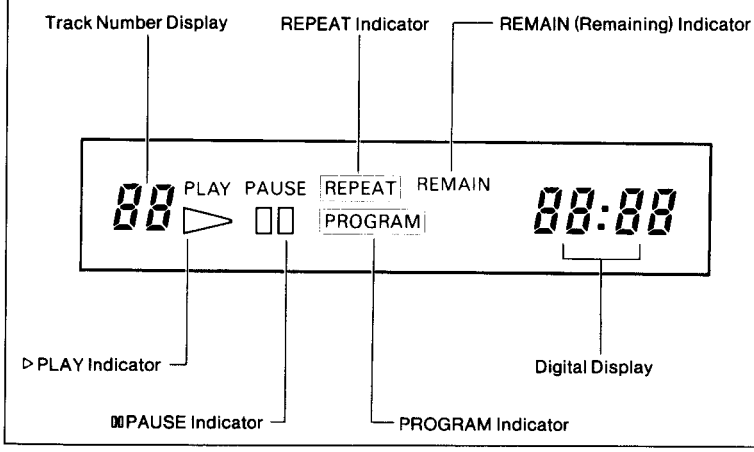
❼ **►/II PLAY/PAUSE Button**
To start and stop playback temporarily.

❽ **◄◄/►► and |◄◄/►►| Search Buttons**
◄◄/►► Buttons
For manual search during playback.
|◄◄/►►| Buttons
To skip tracks during playback.

❾ **OPEN/CLOSE Button**
To open and close the disc tray.

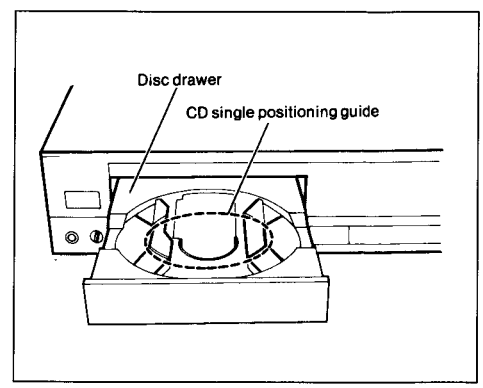
❿ **PHONES Jack and LEVEL Control**
For headphone listening.
(Model CD-M459/R only)

FL (Fluorescent) Display



On the disc drawer

The disc tray of this CD player is capable of holding a CD single (8 cm diameter CD) for playback.
Place the CD single on the center of the disc tray as shown in the following illustration.

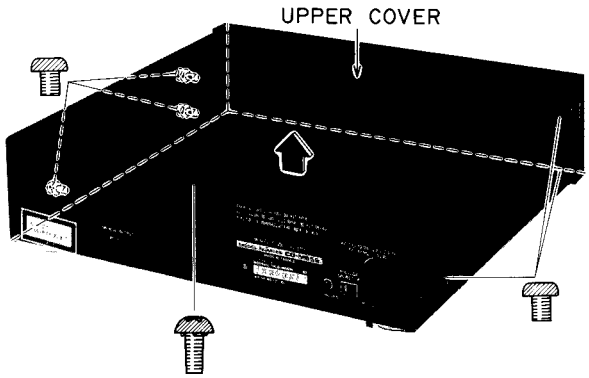


II. DISASSEMBLY

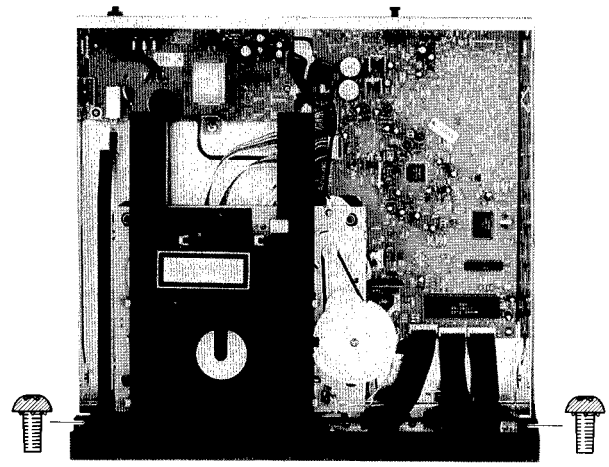
In case of trouble, etc. necessitating dismaintling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

Photographs employed here are of model CD-M659

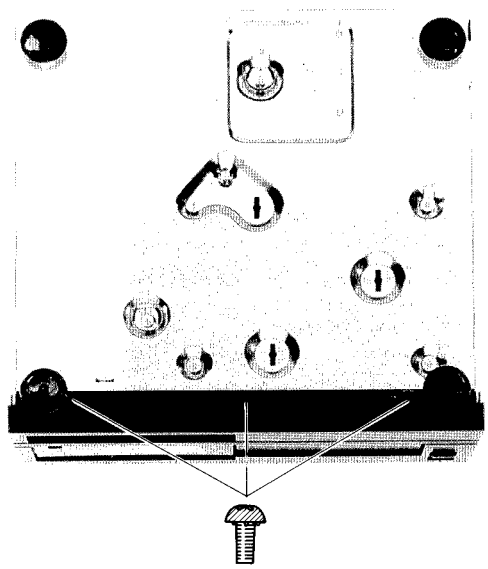
1. Removal of Upper Cover



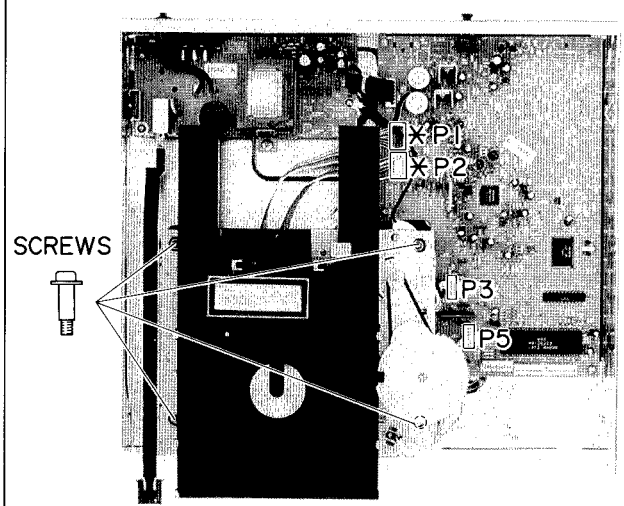
3.



2. Removal of Front Panel



4. Removal of Mecha Block



Remove the fixing screws and connectors P1 to P3 and P5.
* See note.

* Note.
When disconnecting or connecting the connectors P1 and P2, make sure that the circuit of the P.C. Board on the PICK-UP BLOCK has to be shorted. (Refer to IV. 4-1 PRECAUTION)

III. PRINCIPAL PARTS LOCATION

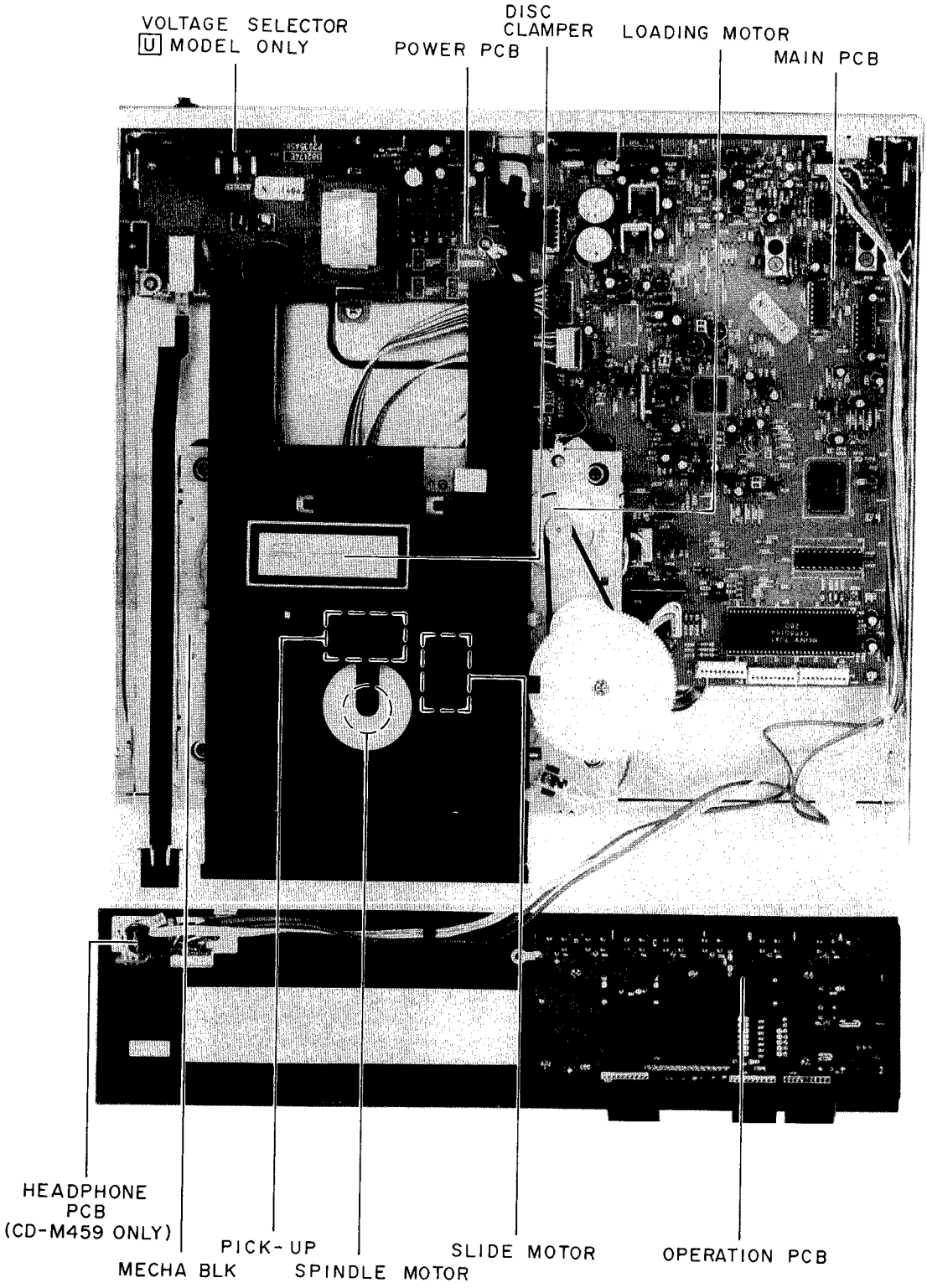


Fig. 3-1

4-1. PRECAUTION, WHEN REPLACING THE PICK-UP BLOCK

When connecting or disconnecting the connectors, the circuit of the P.C. Board (on the Pick-Up Block) has to be shorted by solder as shown Fig. 4-1 after connecting the connectors, resolder from the circuit.
Do not turn the electricity "ON" while it remains shorted-circuited.

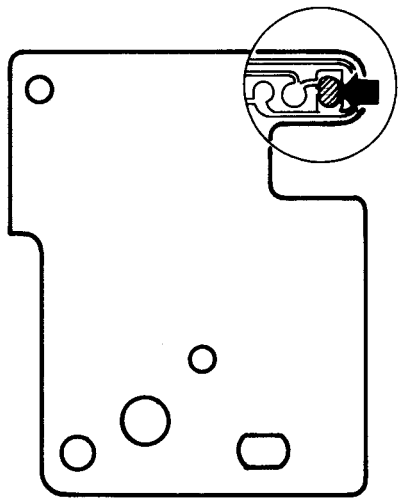


Fig. 4-1

4-2. REMOVAL OF THE DISC CLAMPER (Refer to Fig. 4-2)

1) Turn the LOADING CAM GEAR to counter-clockwise①, then open the DISC TRAY.
2) Pull up the DISC CLAMPER slightly ②, at the same time move the DISC CLAMPER ←direction③, then remove the DISC CLAMPER.

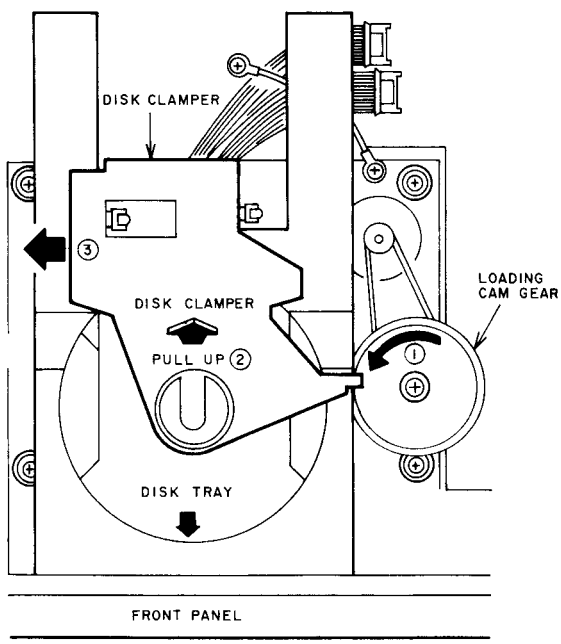


Fig. 4-2

4-3. REMOVAL OF THE PICK-UP BLOCK (Refer to Fig. 4-3)

1) Open the disc tray and disconnect the connectors on the PICK-UP BLOCK. (See 4-1 PRECAUTION.)
2) Push the Ⓐ part in a ← direction, at the same time push the Ⓑ part (shaft) in a ← direction, then remove the PICK-UP BLOCK.
3) Reassemble in reverse order.

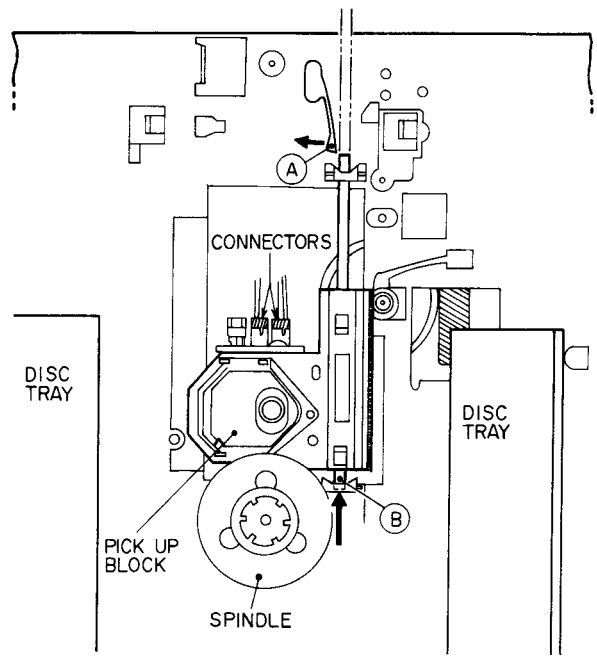


Fig. 4-3

4-4. Replacement of the LOADING MOTOR

1) Remove the LOADING BELT from LOADING MOTOR.
2) Extend motor holders ©, at the same time, push the LOADING MOTOR from pulley side, then remove the LOADING MOTOR. (Fig. 4-4)
3) Reassemble, just push in the LOADING MOTOR.

4-5. Replacement of the SLIDE MOTOR

1) Turn the motor lock lever Ⓑ clockwise.
2) Pull out the SLIDE MOTOR. (Fig. 4-4)
3) Reassemble in reverse order.

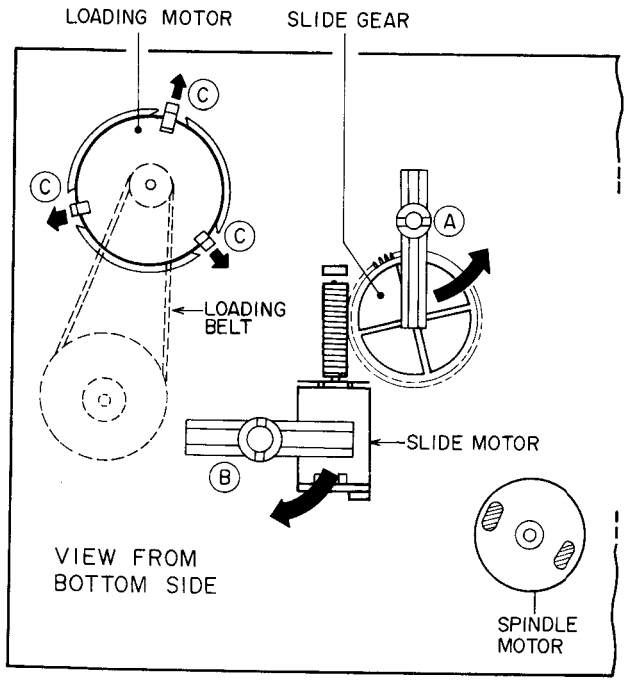


Fig 4-4

4-6. Replacement of the SPINDLE MOTOR

1) Turn the gear hold lever Ⓐ counterclockwise. (Fig. 4-4)
2) Pull out the SLIDE GEAR.
3) Move the pick-up block to opposite from the SPINDLE MOTOR.
4) Turn the TURNTABLE so that the screw peep through the TURNTABLE. (Refer to Fig. 4-5)
5) Use small screwdriver. Remove the screws through the TURNTABLE, then remove the SPINDLE MOTOR.

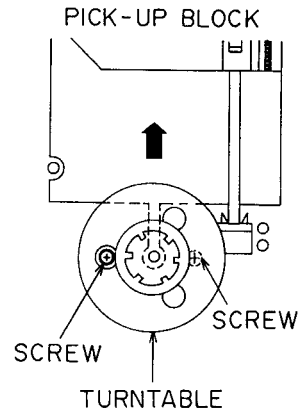
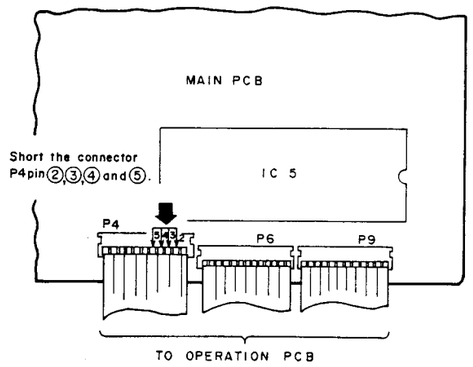


Fig. 4-5

ABOUT THE TEST MODE

- This test mode is used for the adjustment or check.
- Turn on the power while shorting Pin ② ③ ④ and ⑤ of the connector P4 on the MAIN PCB, then unit is set to the TEST MODE.
- Indication of the FRONT PANEL is "0 ES:-0" when TEST MODE.
- When change the TEST MODE number, press the ⏭ key switch on the FRONT PANEL.
- When press the STOP key switch, TEST MODE number return to "0 ES:-0".
- When release from test mode, turn the power off.



TEST MODE OPERATION, DISPLAY AND FUNCTION

OPERATION	DISPLAY	FUNCTION
POWER OR STOP	0 ES:-0	LASER OFF ALL SERVO OFF
FS ⏭	1 ES:-1	LASER ON
FS ⏭	2 ES:-2	FOCUS SERVO ON
FS ⏭	3 ES:-3	SPINDLE MOTOR ON AUDIO MUTE OFF*
FS ⏭	4 ES:-4	TRACKING SERVO ON SLIDE SERVO ON

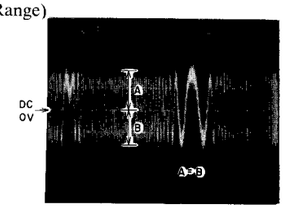
* The functions of Test Mode 3 are activated only Focus ok (Focus servo ok)

2 FOCUS OFF-SET

1. Test Disc 5A (AT-751330)
2. Test mode 2 and 0
3. TP (FE), VR2
4. • Connect a Digital Voltmeter between TP (FE) and GND. Check the voltage A. (Test mode 2)
   • Press STOP button. Then adjust voltage B so that the voltage is same as voltage A. (Test mode 0)
   * Confirm Creaky noise from pick up while test mode 2, when turn the the compact disc by finger.

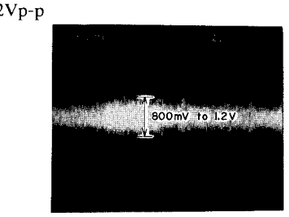
3 E-F BALANCE

1. Test Disc 5A (AT-751330)
2. Test mode 3.
3. TP (TE), VR1
4. • Connect an Oscilloscope between TP (TE) and GND.
   • A = B (DC Range)



5 TRACKING SERVO GAIN

1. Test Disc 5A (AT-751330)
2. Disc play
3. TP (TRK), VR4
4. • Connect an Oscilloscope between TP (TRK) and GND.
   • 800mV ~ 1.2Vp-p

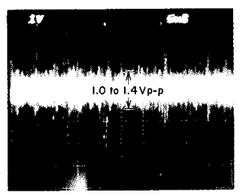


1 VCO

1. ——
2. Power ON
3. TP (WFCK), VR5
4. • Connect a Frequency Counter between TP (WFCK) and GND. Disconnect a short connector P14.
   • 7350 ±10 Hz
   * Connect a short connector P14 after this adjustment.

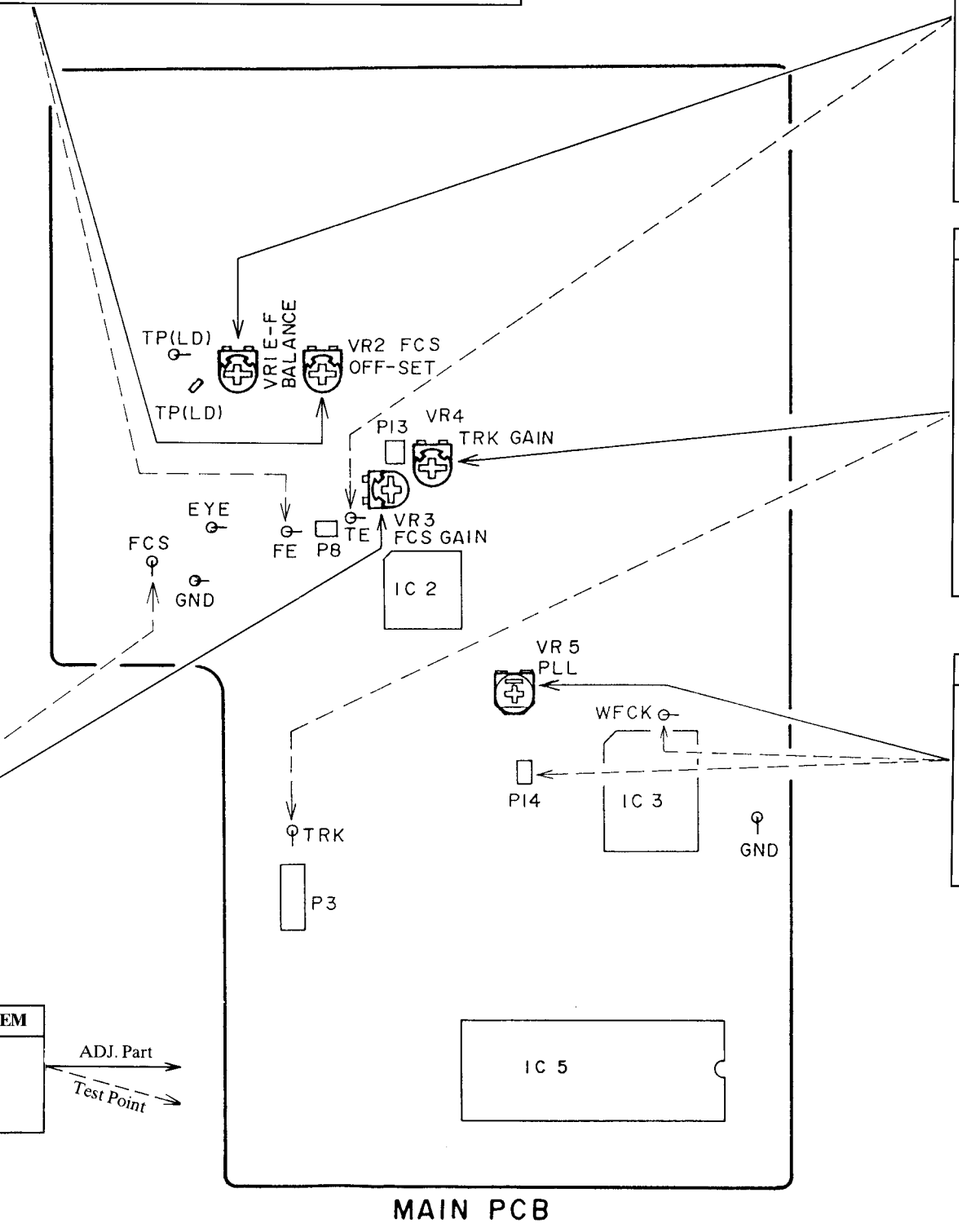
4 FOCUS SERVO GAIN

1. Test Disc 5A (AT-751330)
2. Disc play.
3. TP (FCS), VR3
4. • Connect an Oscilloscope between TP (FCS) and GND.
   • 1.0V ~ 1.4Vp-p



STEP	ADJUSTMENT ITEM
1. Test Disc	
2. Mode	
3. Test Point & Adj. Part	
4. Result & Remarks	

ADJ. Part
Test Point



VI. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.
   a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

   b) PC Board

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination
[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universa Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (W. Germany)
[J] : JPN (Janan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No.listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

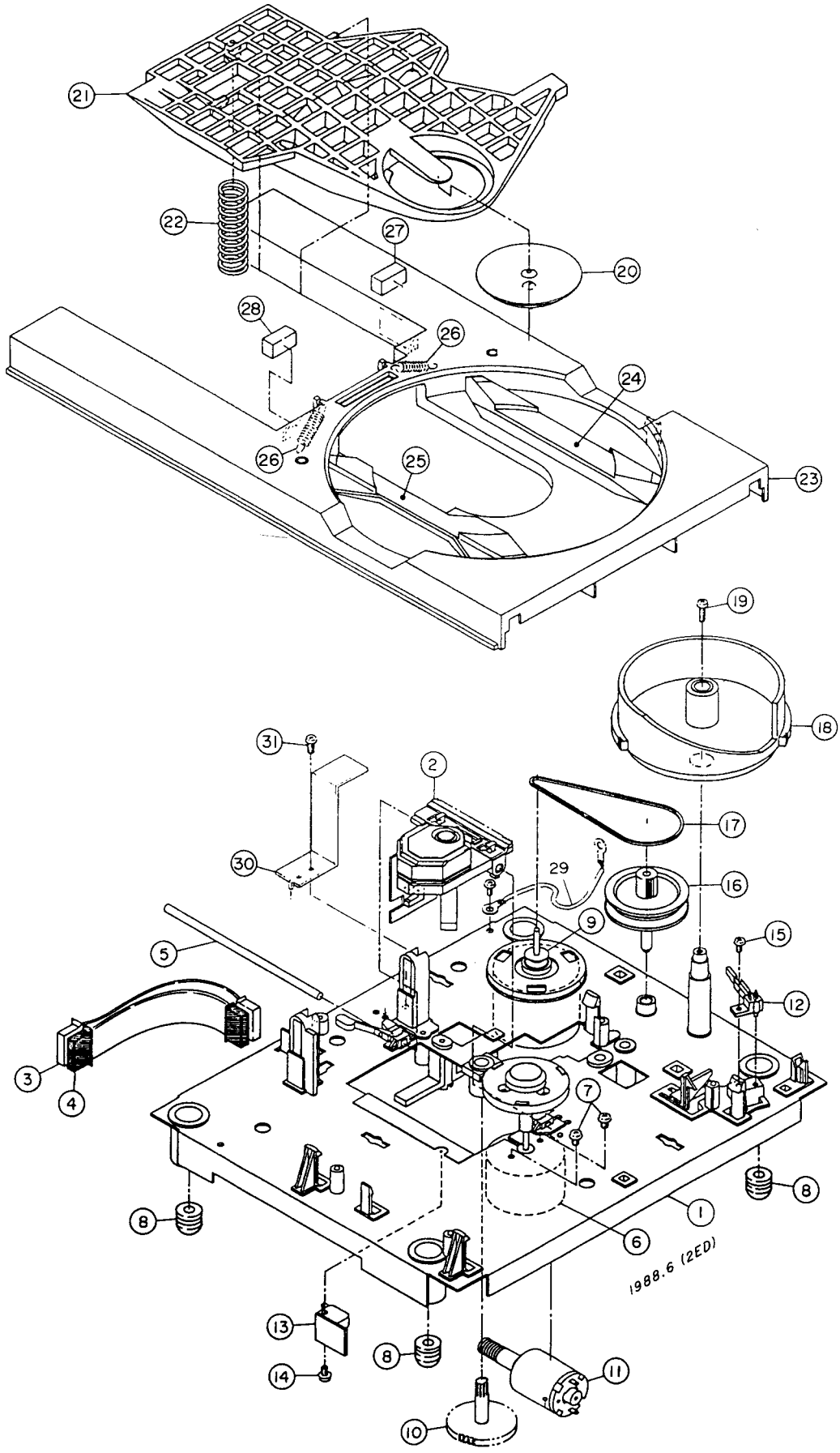
Ref. No.	Part No.	Description
1	BM-B328441	SC MOTOR LOADING PART [LOADING MOTOR]
2	BM-B371552	SC MOTOR SLIDE PART [SLIDE MOTOR]
3	BM-B372237	SC MOTOR SPINDLE PART [SPINDLE MOTOR]
4	BO-368598	PICK UP KSS-150A
5	*BT-378171	TRANS POW P2036(B,S) [B,S]
6	*BT-378170	TRANS POW P2036(E,V) [E,V]
7	*BT-378168	TRANS POW P2036(U) [U]
8	BT-382211J	TRANS PULSE PT221HNNS-3069 [CD-M459]
9	ED-360409	D PHOTO PN323B
10	ED-344280	D SILICON H GMA-01-FY2 F05
11	*ED-511907	D SILICON 1N4002 100/1.0A
12	ED-329056	D ZENER H HZ22 2
13	ED-346603	D ZENER H HZ6 A1
14	ED-337265	D ZENER H HZ6 C2
15	ED-346541	D ZENER H HZ9B2L
16	*EF-601942	FUSE SEMKO T 250V 630MA [E,V,B,S]
17	EH-380185J	FILTER EMI ZBF503S-01 [CD-M459]
18	EH-382202J	FILTER LC LP C257BLR-5405 [CD-M459]
19	*EI-378893J	IC AN79M05F
20	EI-367572	IC BA15218 [CD-M459]
21	EI-373980	IC BA15218N
22	EI-330352	IC BA6109
23	EI-368608	IC CXA1081
24	EI-368609	IC CXA1082A
25	EI-368610	IC CXD1135Q
26	EI-379865J	IC CXP5016H-260S CUSTOM
27	EI-382251J	IC LC3517BS-15
28	EI-368612	IC PCM56P [CD-M459]
29	EI-332259	IC TC4052BP [CD-M459]
30	EI-360039	IC TC74HC08P [CD-M459]
31	EI-367271	IC UPC1490HA
32	*EI-371572	IC UPC7805H
33	EI-374176	OSC X'TAL AT-51 16.9344MHZ
34	EJ-374191	SOCKET OPTICAL T0TX172 [CD-M659]
35	EM-374177	IND FL 7-BT-83GK
36	*EO-338409	COIL LF FK0B160MH02 250UH
37	*ER-328278	R FUSE H ERD2FC 1/4W 10R0G
38	ES-368603	SW LEAF MSW-1585 [OPEN/CLOSE SW]
39	*ES-371104	SW PUSH SDDLD1082A 01-1 [POWER SW]
40	ES-355842	SW SLIDE SSCTP1026A 1-01-02S [INNER SW]
41	*ES-349464	SW SLIDE 00120319 01-2 [U] [VOLTAGE SELECTOR]
42	ES-360576	SW TACT SKHHPM
43	ET-354897	TR FET 2SK170 BL,GR,V [CD-M459]
44	ET-353899	TR 2SA1317 S,T,U
45	ET-322598	TR 2SB632K E,F
46	ET-318237	TR 2SB764 E,F
47	ET-360067	TR 2SC3330 T,U F05
48	ET-310148	TR 2SD612K E,F
49	ET-200986	TR 2SD863-V8 F
50	EV-378175	VR ROTARY RK0971220 B203X2 [HEADPHONE LEVEL]
51	MB-368590J1	BELT LOADING
52	MZ-374138	CAM GEAR LOADING
53	MZ-368349	GEAR WORM WHEEL

2. MECHA BLOCK

Ref. No.	Part No.	Description
1	MA-380689J	CHASSIS MECHA OUTSERT PART
2	BO-368598	PICK UP KSS-150A
3	EW-368599	WIRE ASSY OT-M1 PU1 8P
4	EW-368600	WIRE ASSY OT-M1 PU2 8P
5	MS-368348	SHAFT
6	BM-B372237	SC MOTOR SPINDLE PART [SPINDLE MOTOR]
7	ZS-367463	PAN20X025STL CMT
8	MB-368350	CUSHION RUBBER
9	BM-B328441	SC MOTOR LOADING PART [LOADING MOTOR]
10	MZ-368349	GEAR WORM WHEEL
11	BM-B371552	SC MOTOR SLIDE PART [SLIDE MOTOR]
12	ES-368603	SW LEAF MSW-1585 [OPEN/CLOSE SW]
13	ES-355842	SW SLIDE SSCTP1026A 1-01-02S [INNER SW]
14	ZS-536488	BID20X08STL CMT
15	ZS-343082	PT BR26X08STL CMT
16	MR-374137J1	PULLEY GEAR
17	MB-368590J1	BELT LOADING
18	MZ-374138	CAM GEAR LOADING
19	ZS-365391	PT BR30X08STL CMT C080
20	MZ-368347	CLAMPER
21	SZ-374136J1	HOLDER CLAMPER
22	ZG-368591J1	SP PUSH CLAMP
23	SC-382692J1	DISK TRAY S PART
24	MZ-382686J1	HOLDER DISC S-(R)
25	MZ-382687J1	HOLDER DISC S-(L)
26	ZG-368592	SP PULL DISK HOLD
27	MB-377975	STOPPER RUBBER
28	MB-378827J	STOPPER RUBBER(B)
30	MZ-378828J	ANGLE TRAY
31	ZS-432843	PAN26X04STL CMT
32	BB-P2036D060A	MECHA BLK CD-32 [INCL. 1 TO 31]

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with referrence No.

MECHA BLOCK



3. P.C BOARD BLOCK

Ref. No.	Part No.	Description
1A	BA-P2035Q030A	FR PC(#)MAIN BLK CD-M459/FR(U) [U,B,S]
1B	BA-P2035Q030B	FR PC(#)MAIN BLK CD-M459/FR(E) [E,V]
1C	BA-P2035Q030C	FR PC(#)MAIN BLK CD-M659/FR(U) [U,B,S]
1D	BA-P2035Q030D	FR PC(#)MAIN BLK CD-M659/FR(E) [E,V]

PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.

* MAIN P.C BOARD
* HEADPHONE P.C BOARD

CROSS REFERENCE TABLE

1. TRANSISITOR

Original part	Equivalent Part	
Part Name	Part Name	Part No.
BD135	2SD863-V8	ET-200986
BD136	2SB764	ET-318237
BD233	2SD612K	ET-310148
BD234	2SB632K	ET-322598
JA105	2SA1317	ET-353899
JC505	2SC3330	ET-360067

2. ZENER DIODE

Original part	Equivalent Part	
Part Name	Part Name	Part Name
BZX55 C6V2	HZ6 C2	ED-337265
BZX55 C7V5	HZ7 B3	ED-305706
BZX55 C9V1	HZ9B2L	ED-346541
BZX55 C22	HZ22-2	ED-329056

4. MAIN P.C BOARD

Ref. No.	Part No.	Description
D3	ED-344280	D SILICON H GMA-01-FY2 F05
D6	ED-346603	D ZENER H HZ6 A1
D8	ED-344280	D SILICON H GMA-01-FY2 F05
D9	ED-344280	D SILICON H GMA-01-FY2 F05
D11	ED-344280	D SILICON H GMA-01-FY2 F05
D12	ED-344280	D SILICON H GMA-01-FY2 F05
D15	ED-337265	D ZENER H HZ6 C2
D201	ED-344280	D SILICON H GMA-01-FY2 F05
D202	ED-344280	D SILICON H GMA-01-FY2 F05
D203	ED-344280	D SILICON H GMA-01-FY2 F05
FL1	EH-382202J	FILTER LC LP C257BLR-5405 [CD-M459]
FL2	EH-380185J	FILTER EMI ZBF503S-01 [CD-M459]
IC1	EI-368608	IC CXA1081
IC2	EI-368609	IC CXA1082A
IC3	EI-368610	IC CXD1135Q
IC4	EI-382251J	IC LC3517BS-15
IC5	EI-379865J	IC CXP5016H-260S CUSTOM
IC7	EI-330352	IC BA6109
IC8	EI-368612	IC PCM56P [CD-M459]
IC9	EI-332259	IC TC4052BP [CD-M459]
IC10	EI-367572	IC BA15218 [CD-M459]
IC11	EI-367572	IC BA15218 [CD-M459]
IC12	*EI-371572	IC UPC7805H
IC13	*EI-378893J	IC AN79M05F
IC14	EI-360039	IC TC74HC08P [CD-M459]
L1	EO-351861	COIL FIX 1 LAL02 F05 100J
L2	EO-351861	COIL FIX 1 LAL02 F05 100J
P7	EJ-382473J	PIN J YKC21-0296 2P [OUTPUT][CD-M459]
P11	EJ-376482	PIN J YKB11-0422 1P [DIGITAL OUTPUT][CD-M459]
PT1	EJ-374191	SOCKET OPTICAL T0TX172 [CD-M659]
R42	*ER-328278	R FUSE H ERD2FC 1/4W 10R0G
TR1	ET-318237	TR 2SB764 E,F
TR2	ET-310148	TR 2SD612K E,F
TR3	ET-318237	TR 2SB764 E,F
TR4	ET-310148	TR 2SD612K E,F
TR5	ET-322598	TR 2SB632K E,F
TR6	ET-200986	TR 2SD863-V8 F
TR7	ET-318237	TR 2SB764 E,F
TR8	ET-360067	TR 2SC3330 T,U F05
TR9	ET-310148	TR 2SD612K E,F
TR10	ET-322598	TR 2SB632K E,F
TR17	ET-360067	TR 2SC3330 T,U F05
TR18	ET-353899	TR 2SA1317 S,T,U
TR19	ET-360067	TR 2SC3330 T,U F05
TR20	ET-353899	TR 2SA1317 S,T,U [CD-M459]
TR21	*ET-353899	TR 2SA1317 S,T,U
TR22	ET-354897	TR FET 2SK170 BL,GR,V [CD-M459]
TR23	ET-360067	TR 2SC3330 T,U F05 [CD-M459]
TR28	ET-360067	TR 2SC3330 T,U F05
T1	BT-382211J	TRANS PULSE PT221HNNS-3069 [CD-M459]
VR1	EV-358829	R S-FIX H RH0615C 0.10W 223
VR2	EV-356576	R S-FIX H RH0615C 0.10W 472
VR3	EV-358829	R S-FIX H RH0615C 0.10W 223
VR4	EV-358829	R S-FIX H RH0615C 0.10W 223
VR5	EV-371279	R S-FIX H VM6CKPVB 0.30W 102
X1	EI-374176	OSC X'TAL AT-51 16.9344MHZ

5. HEADPHONE P.C BOARD (CD-M459 ONLY)

Ref. No.	Part No.	Description
FL3	EH-380185J	FILTER EMI ZBF503S-01
FL4	EH-380185J	FILTER EMI ZBF503S-01
IC6	EI-373980	IC BA15218N
P15	EJ-358901	PHONE J 3P HLJ0541-010 W/NUT [HEADPHONE]
TR26	ET-360067	TR 2SC3330 T,U F05
VR6	EV-378175	VR ROTARY RK0971220 B203X2 [HEADPHONE LEVEL]

6. OPERATION P.C BOARD

Ref. No.	Part No.	Description
FL1	EM-374177	IND FL 7-BT-83GK
TS1	ES-360576	SW TACT SKHHPM
TS2	ES-360576	SW TACT SKHHPM
TS3	ES-360576	SW TACT SKHHPM
TS4	ES-360576	SW TACT SKHHPM
TS5	ES-360576	SW TACT SKHHPM
TS6	ES-360576	SW TACT SKHHPM
TS7	ES-360576	SW TACT SKHHPM
TS8	ES-360576	SW TACT SKHHPM

7. SENSOR C P.C BOARD

Ref. No.	Part No.	Description
D1	ED-360409	D PHOTO PN323B
IC1	EI-367271	IC UPC1490HA

8. POWER SUPPLY P.C BOARD

Ref. No.	Part No.	Description
C6	*EC-338496	C CE V FZ 472P 400AC
D1	*ED-511907	D SILICON 1N4002 100/1.0A
D2	*ED-511907	D SILICON 1N4002 100/1.0A
D3	*ED-511907	D SILICON 1N4002 100/1.0A
D4	*ED-511907	D SILICON 1N4002 100/1.0A
D5	*ED-511907	D SILICON 1N4002 100/1.0A
D6	*ED-511907	D SILICON 1N4002 100/1.0A
D7	*ED-511907	D SILICON 1N4002 100/1.0A
D8	*ED-511907	D SILICON 1N4002 100/1.0A
D9	*ED-511907	D SILICON 1N4002 100/1.0A
D10	ED-329056	D ZENER H HZ22 2
D11	ED-346541	D ZENER H HZ9B2L
D12	*ED-511907	D SILICON 1N4002 100/1.0A
SW1	*ES-371104	SW PUSH SDDLD1082A 01-1 [POWER SW]
TR1	ET-318237	TR 2SB764 E,F
VS1	*ES-349464	SW SLIDE 00120319 01-2 [U] [VOLTAGE SELECTOR]
T1A	*BT-378168	TRANS POW P2036(U) [U]
T1B	*BT-378170	TRANS POW P2036(E,V) [E,V]
T1C	*BT-378171	TRANS POW P2036(B,S) [B,S]
FL1	*EO-338409	COIL LF FKOB160MH02 250UH
F1	*EF-601942	FUSE SEMKO T 250V 630MA [E,V,B,S]
F2	*EF-601942	FUSE SEMKO T 250V 630MA [E,V,B,S]

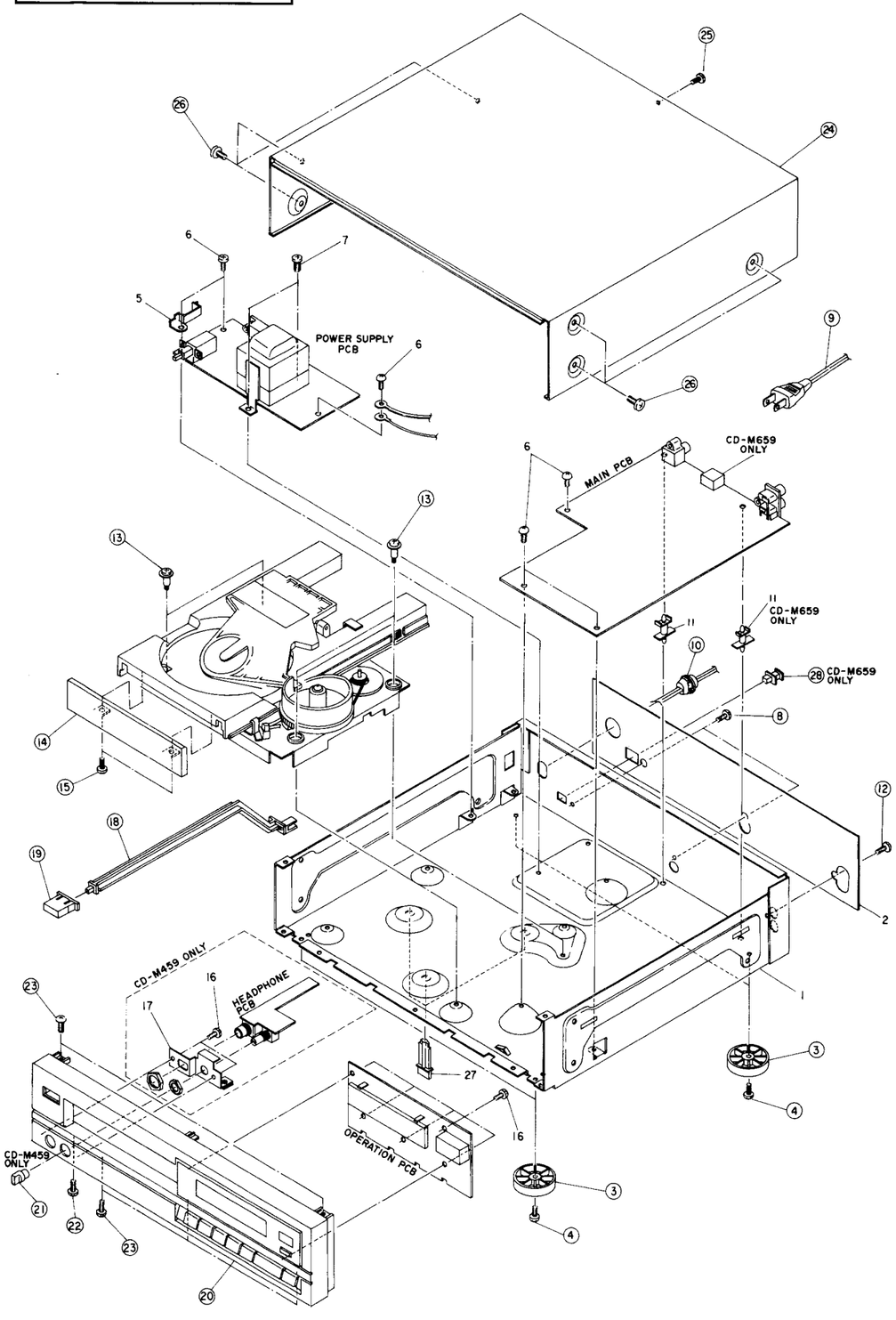
9. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
3A	SA-383763E	FRONT FOOT CD-M459 PART
3B	SA-383764E	FRONT FOOT CD-M659 PART
4	ZS-320906	ST BR30X06STL CMT
8	ZS-350934	PT BR30X08STL BNI
9A	*EW-363659	AC CORD 200 0129AVFF B070 A U [U]
9B	*EW-363671	AC CORD 200 0364 LCFL B100 A E [E,V]
9C	*EW-363683	AC CORD 200 LCFL B100 A B [B]
9D	*EW-363698	AC CORD 200 0436 LCFL B070 A S [S]
10	EZ-345816	STOPPER CORD CM-22B
12	ZS-366385	T2BR30X08STL BNI PROJECTION
13	ZS-378163	SCREW GRADUATED
14	SP-383227E	PANEL TRAY B
15	ZS-351204	PT BR30X06STL BNI
18	MZ-383201E	JOINT POW
19	SK-383231E	KNOB POW B
20A	BD-P2035Q020A	FR PANEL FRONT BLK CD-M459-B/FR
20B	BD-P2035Q020B	FR PANEL FRONT BLK CD-M659-B/FR
21	SK-383228E	KNOB VOL B [CD-M459]
22	ZS-365759	CT BR30X08STL BZN PROJECTION
23	ZS-345272	ST BR30X06STL BNI
24	SP-383206E	COVER TOP B
25	ZS-365759	CT BR30X08STL BZN PROJECTION
26	ZS-341960	ST BID40X06STL BNI
28	SZ-725384J	CAP OPTICAL PROTECTER [CD-M659 ONLY]

10. ACCESSARY

Ref. No.	Part No.	Description
1	EW-344151	CORD RR-61A PINX2-PINX2 [CD-M459/R]
2	AX-380250J	REMOCON RC-C32 WIRELESS T [CD-M459R ONLY]
3	ZZ-374173	CORD TOCP172-150CB [CD-M659 ONLY]

FINAL ASSEMBLY BLOCK



ABBREVIATIONS (COMPACT DISC)

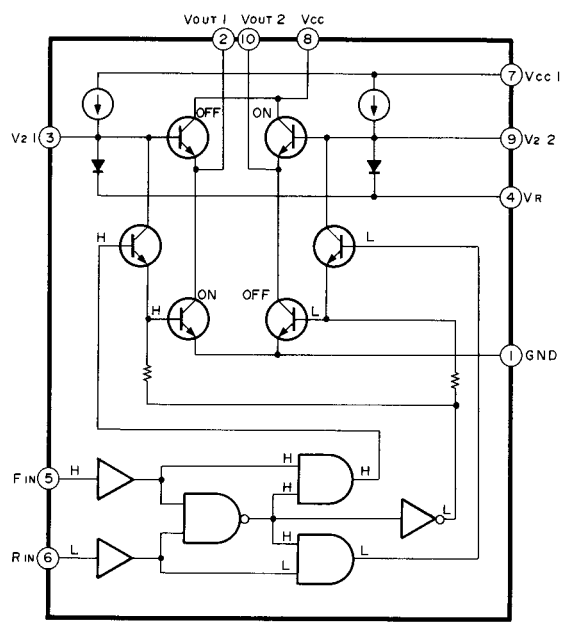
ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A-D	Analog to Digital (Convertor)	Mb	Mega Bits
ADC	Analog to Digital (Convertor)	MDA	Motor Drive Amplifier
BCD	Binary Code Decimal	MFM	Modified Frequency Modulation
BPI	Bits per Inch	MM	Mono-stable Multivibrator
CD	Compact Disc	M^2FM	Modified Modified Frequency Modulation
CIRC	Cross Interleaving & Reed Solomon Coding	MOD2	Modulo 2 (Addition)
CLV	Constant Linear Velocity	MP	Microprocessor
CP	Clock Pulses	MSB	Most Significant Bit
CRCC	Cyclic Redundancy Check Codes	NA	Numerical Aperture
D Level	Decision Level	NRZ	Non Return to Zero
D-A	Digital to Analog (Convertor)	NRZ-1	Non Return to Zero Inverted
DAC	Digital to Analog (Convertor)	P	Parity Data
DAD	Digital Audio Disc	PAM	Pulse Amplitude Modulation
DEM	Dynamic Element Matching	PCM	Pulse Code Modulation
DPD	Differential Phase Detection	PD	Phase Detector
DSV	Digital Sum Value	PE	Phase Encode
EFM	Eight to fourteen Modulation	PLL	Phase Locked Loop
EX-OR	EXclusive OR	PNM	Pulse Number Modulation
FCI	Flux Changes per Inch	PPM	Pulse Phase Modulation
FIR	Finite Impulse Response	PWM	Pulse Width Modulation
FP	Front Pulse	Q	Parity Data
FPG	Front Pulse Gate	R, R_1, R_2, etc.	Data for Right Channel
f	Frequency of Sampling	RAM	Random Access Memory
GF	Galois Field	RPG	Rear Pulse Gate
H&V (Parity)	Horizontal & Vertical	SCOOP	Self Coupled Optical Pick-up
IIR	Infinite Impulse Response	S&H	Sample & Hold
kb	Kilo Bits	S/N	Signal to Noise Ratio
L, L_1, L_2, etc.	Data for Left Channel	SSG	Standard Signal Generator
LPF	Low Pass Filter	SYS CON	SYStem CONtrol
LSB	Least Significant Bit		

AKAI

MODEL CD-M459/R
MODEL CD-M659

SCHEMATIC DIAGRAM
AND PC BOARDS

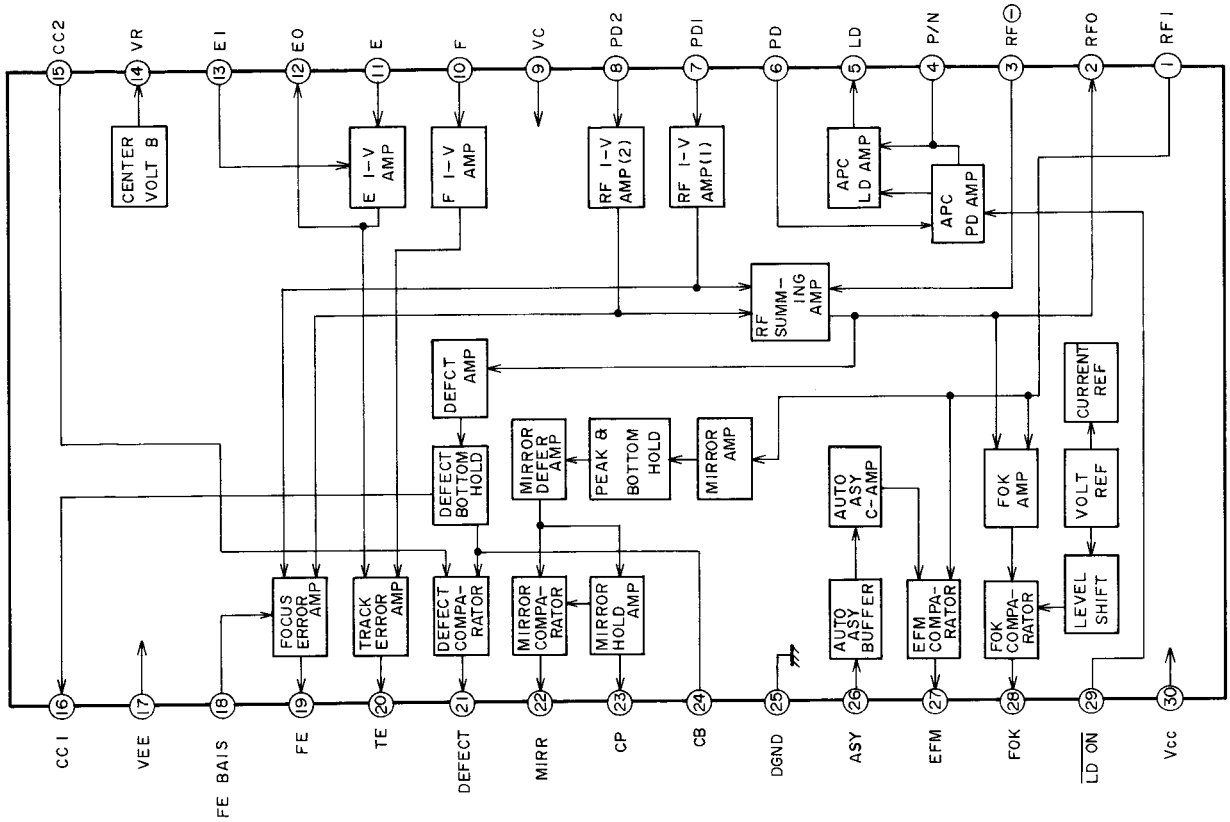
BA6019 REVERSIBLE MOTOR DRIVER



FIN	RIN	Vout1	Vout 2
1	1	L	L
0	1	L	H
1	0	H	L
0	0	L	L

1 = More than 2.0V
0 = Less than 0.7V

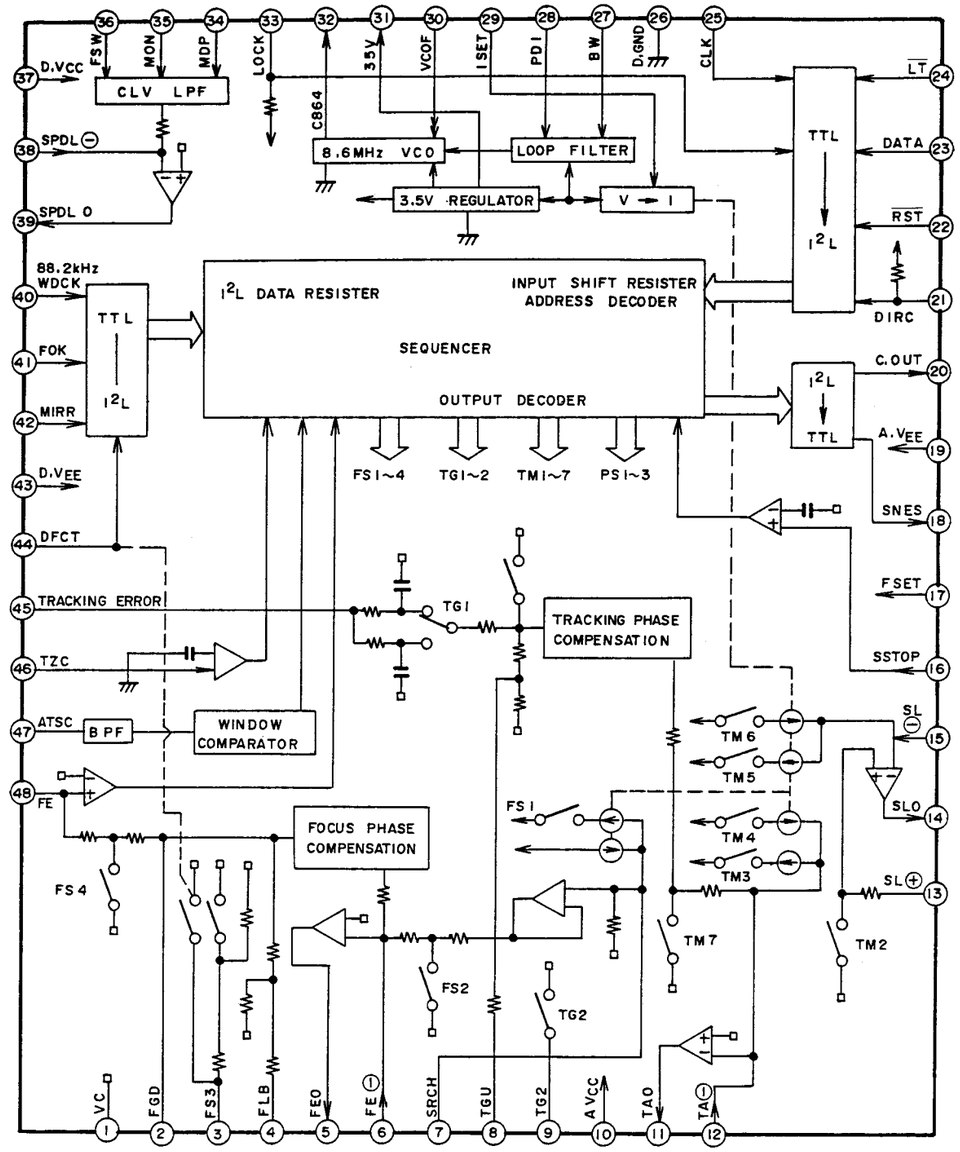
CXA1081 RF AMPLIFIER



CXA1081 RF AMPLIFIER

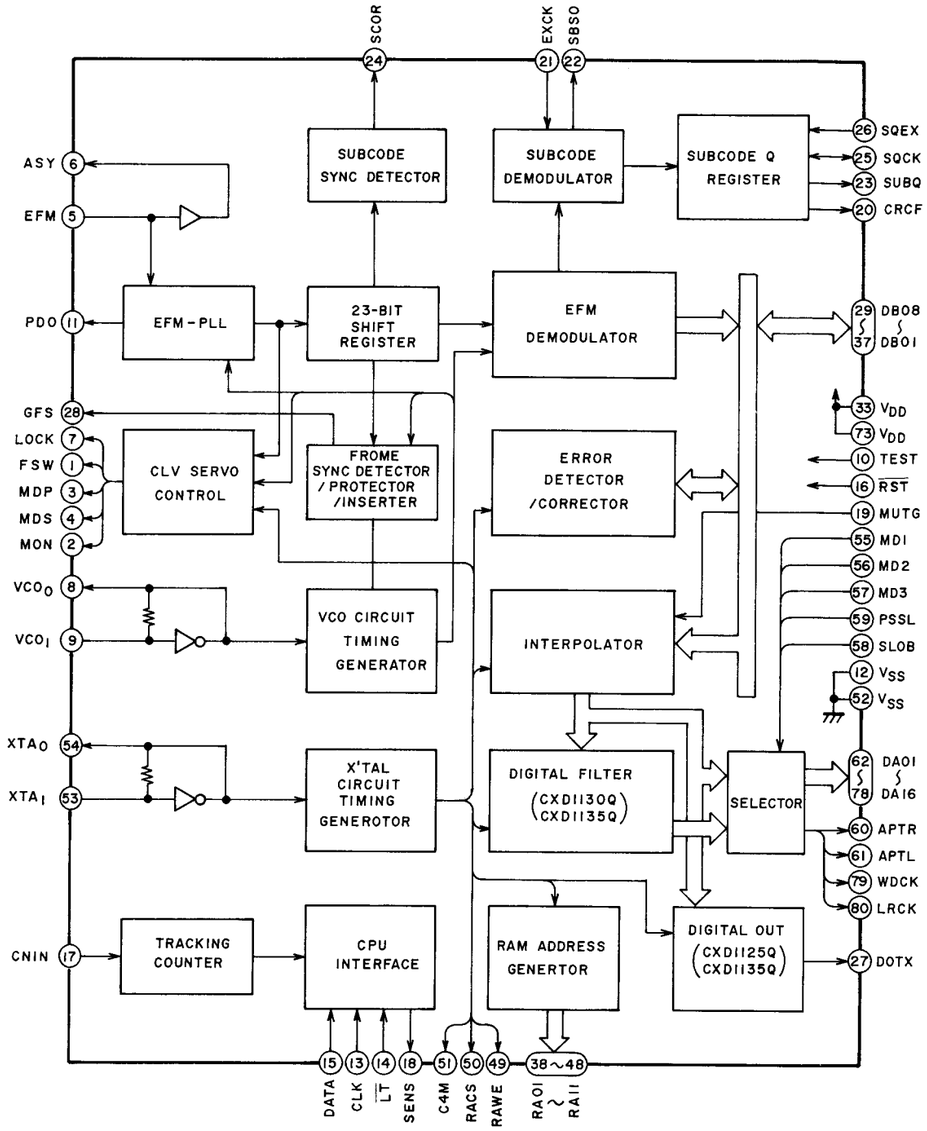
PIN NO.	SYMBOL	I/O	FUNCTION
1	RF1	I	RF SIGNAL FROM SUMMING AMP
2	RF0	O	RF SIGNAL OUT (EYE PATTERN CHECK POINT)
3	RF⊖	I	FEED BACK TO SUMMING AMP
4	P/N	—	NC
5	LD	O	AUTO POWER CONTROL OUT (TO LASER DIODE)
6	PD	I	AUTO POWER CONTROL IN (FROM PILOT DIODE)
7	PD1	I	A+C SIGNAL RF I-V AMP IN
8	PD2	I	B+D SIGNAL RF I-V AMP IN
9	VC	—	GND
10	F	I	TRACKING DIODE SIGNAL RF I-V AMP IN (F)
11	E	I	TRACKING DIODE SIGNAL RF I-V AMP IN (E)
12	E0	O	RF I-V AMP (E) OUT
13	E1	I	FEED BACK TO RF I-V AMP (E)
14	VR	—	NC
15	CC2	I	DEFECT BOTTOM HOLD IN
16	CC1	O	DEFECT BOTTOM HOLD OUT
17	VEE	—	−B
18	F · EBIAS	I	FOCUS OFF-SET VOLTAGE IN
19	FE	O	FOCUS ERROR OUT
20	TE	O	TRACKING ERROR OUT
21	DEFECT	O	DEFECT COMPALATOR OUT
22	MIRR	O	MIRROR COMPALATOR OUT
23	CP	I	CONNECT MIRROR HOLD CONDENSER
24	CB	I	CONNECT BOTTOM HOLD CONDENSER
25	DGND	—	GND
26	ASY	I	AUTO ASYMMETRY SIGNAL IN
27	EFM	O	EFM COMPALATOR OUT
28	FOK	O	FOCUS OK COMPALATOR OUT
29	LDON	I	LASER DIODE ON/OFF CONTROL IN
30	VCC	—	+B

CXA1082A SERVO SIGNAL PROCCESOR



CXA1082A SERVO SIGNAL PROCCESOR

PIN NO.	SYMBOL	I/O	DESCRIPTION
1	VC	——	GND (0V)
2	FGD	——	Connect condenser for Focus servo gain control.
3	FS3	——	Focus servo gain select.
4	FLB	——	Connect condenser for Focus servo correction.
5	FE0	O	Focus drive output.
6	FE ⊖	I	FOCUS AMP. Inverting input.
7	SRCH	——	Connect condenser for Focus search wave.
8	TGU	——	Connect condenser for Tracking gain select.
9	TG2	——	Connect condenser for Tracking gain select.
10	A.VCC	——	+5V
11	TA0	O	Tracking drive output.
12	TA ⊖	I	Tracking AMP. Inverting input.
13	SL ⊕	I	Slide motor non-inverting input
14	SLO	O	Slide motor drive output.
15	SL ⊖	I	Slide AMP. inverting input.
16	SSTOP	I	Not use (Holded "H" level).
17	FSET	I	Focus, Tracking compensation and CLV. LPF set up.
18	SENS	O	FZC. AS. TZC. SSTOP and $\overline{BUSY}$ output.
19	A. VEE	——	−5V.
20	C.OUT	O	Track count signal output.
21	DIRC	——	Not used
22	$\overline{RST}$	I	$\overline{RESET}$ Input.
23	DATA	I	Data signal input from CPU.
24	$\overline{LT}$	I	Lutch signal input from CPU.
25	CLK	I	Clock signal input from CPU.
26	D.GND	——	GND (0V).
27	BW	I	Connect condenser for Loop filter.
28	PDI	I	PDO signal from IC3 CXD1135Q (Pin 11).
29	ISET	I	Focus search, Track jump and slide kick current input.
30	VCOF	I	Connect register for VCO frequency.
31	3.5V	O	+3.5V REG. output.
32	C864	O	8.64 MHz VCO output.
33	LOCK	I	LOCK signal from IC3 CXD1135Q (Pin 7)
34	MDP	I	MDP signal from IC3 CXD1135Q (Pin 3)
35	MON	I	MON signal from IC3 CXD1135Q (Pin 2)
36	FSW	I	Connect condenser for CLV servo error signal LPF.
37	DVCC	——	+5V
38	SPDL ⊖	I	Spindle drive AMP. inverting input.
39	SPDLO	I	Spindle drive output.
40	WDCK	I	Auto sequence clock signal input (88.2 kHz)
41	FOK	I	Focus OK signal input.
42	MIRR	I	MIRR signal input.
43	DVEE	——	−5V
44	DFCT	I	Defect signal input "H" active.
45	TE	I	Tracking error signal input.
46	TZC	I	Tracking zero cross comparator input.
47	ATSC	I	ATSC detect window comparator input.
48	FE	I	Focus error signal input.



CXD1135Q DIGITAL SIGNAL PROCCESOR

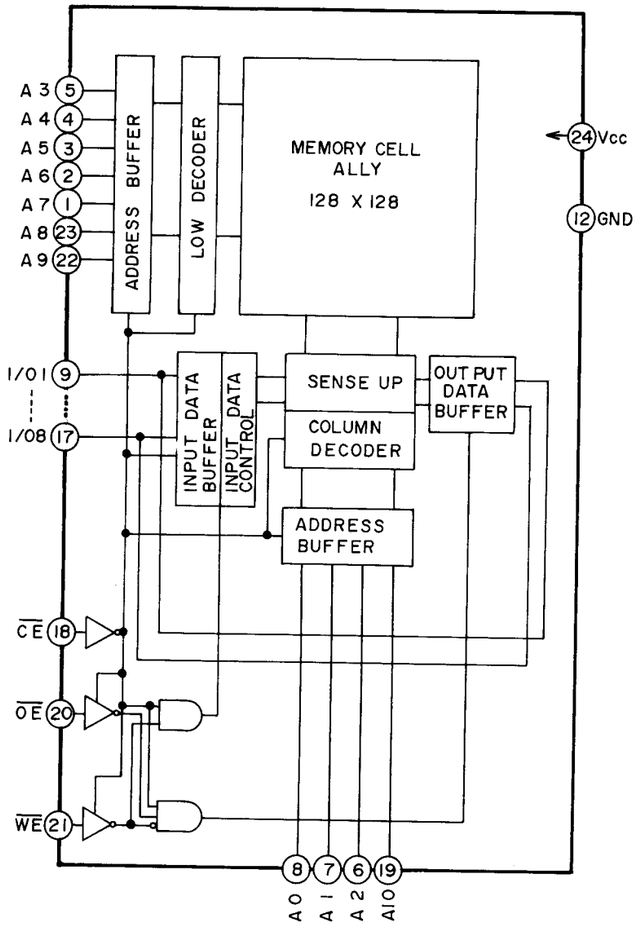
No.	Symbol	I/O	Description
1	FSW	O	Spindle motor filter switching control
2	MON	O	Spindle motor ON/OFF control
3	MPD	O	Spindle motor speed and phase control
4	MDS	O	Spindle motor speed control
5	EFM	I	EFM signal input
6	ASY	O	EFM signal slice level control
7	LOCK	O	Slide motor over reach guard signal output
8	VCOO	O	VCO output f=8.6436 MHz
9	VCOI	I	VCO input
10	TEST	I	OV (GND)
11	PDO	O	Phase comp.output
12	VSS	—	GND (OV)
13	CLK	I	Clock signal from CPU
14	$\overline{LT}$	I	Lutch signal from CPU
15	DATA	I	Serial data from CPU
16	$\overline{RST}$	I	RESET input "L" reset
17	CNIN	I	Tracking pulse input (5V)
18	SENS	O	Output of CPU interface
19	MUTG	I	Mute control signal input
20	CRCF	O	CRC check output of the subcode Q "L" detect error
21	EXCK	I	NOT USE
22	SBSO	O	NOT USE
23	SUBQ	O	Subcode Q output
24	SCOR	O	Subcode sync detection output
25	SQCK	I/O	Clock signal for subcode Q
26	SQEX	I	Select input of CQCK (+5V)
27	DOTX	O	Digital output
28	GFS	O	"H" frame sync lock "L" frame sync unlock
29	DB08	I/O	Data 8 (MSB) Data Bus line for the EXT.RAM (LC3517AS-15)
30	DB07	I/O	Data 7 Data bus line for the EXT.RAM (LC3517AS-15)
31	DB06	I/O	Data 6 Data Bus line for the EXT.RAM (LC3517AS-15)
32	DB05	I/O	Data 5 Data Bus line for the EXT.RAM (LC3517AS-15)
33	VDD	—	+5V
34	DB04	I/O	Data 4 Data Bus line for the EXT.RAM (LC3517AS-15)
35	DB03	I/O	Data 3 Data Bus line for the EXT.RAM (LC3517AS-15)
36	DB02	I/O	Data 2 Data Bus line for the EXT.RAM (LC3517AS-15)
37	DB01	I/O	Data 1 (LSB) Data Bus line for the EXT.RAM (LC3517AS-15)
38	RA01	O	ADDR01 (LSB) Address signal output for the EXT. RAM (LC3517AS-15)
39	RA02	O	ADDR02 Address signal output for the EXT. RAM (LC3517AS-15)
40	RA03	O	ADDR03 Address signal output for the EXT. RAM (LC3517AS-15)

No.	Symbol	I/O	Description
41	RA04	O	ADDR04 Address signal output for the EXT. RAM (LC3517AS-15)
42	RA05	O	ADDR05 Address signal output for the EXT. RAM (LC3517AS-15)
43	RA06	O	ADDR06 Address signal output for the EXT. RAM (LC3517AS-15)
44	RA07	O	ADDR07 Address signal output for the EXT. RAM (LC3517AS-15)
45	RA08	O	ADDR08 Address signal output for the EXT. RAM (LC3517AS-15)
46	RA09	O	ADDR09 Address signal output for the EXT. RAM (LC3517AS-15)
47	RA10	O	ADDR10 Address signal output for the EXT. RAM (LC3517AS-15)
48	RA11	O	ADDR11 (MSB) Address signal output for the EXT. RAM (LC3517AS-15)
49	RAWE	O	Write enable signal output "L" active
50	RACS	O	Chip select signal output "L" active
51	C4M	O	1/4X'tal OSC.output (f=4.2336MHz)
52	Vss	—	GND(0V)
53	XTAI	I	X'tal OSC. input (f=16.9344MHz)
54	XTAO	O	X'tal OSC.output (f=16.9344MHz)
55	MD1	I	Mode select input 1 0V (GND)
56	MD2	I	Mode select input 2 0V (GND)
57	MD3	I	Mode select input 3 0V (GND)
58	SLOB	I	0V (GND)
59	PSSL	I	0V (GND)
60	APTR	O	Aperture correction signal output "H" R-channel
61	APTL	O	Aperture correction signal output "H" L-channel
62	C1F1	O	NOT USE
63	C1F2	O	TP-C1F2
64	C2F1	O	NOT USE
65	C2F2	O	NOT USE
66	C2FL	O	TP-CSFL
67	C2P0	O	NOT USE
68	RFCK	O	NOT USE
69	WFCK	O	TP-WFCK
70	$\overline{\text{PLCK}}$	O	NOT USE
71	UGFS	O	NOT USE
72	GTOP	O	NOT USE
73	VDD	—	+5V
74	RA0V	O	NOT USE
75	4CLR	O	NOT USE
76	$\overline{\text{C210}}$	O	$\overline{\text{C210}}$ INV.C210 (Pin 77) f=2.1168MHz
77	C210	O	NOT USE
78	DATA	O	Data output
79	WDCK	O	Worde clock output 88.2kHz strobe
80	LRCK	O	NOT USE (L-ch, R-ch clock output)

CXP5016-260S MICRO PROCCESOR

PIN NO.	SYMBOL	I/O	FUNCTION
1	EMP	O	EMPHASIS CODE OUTPUT
2	SYNCP	—	GND
3	RMT	I	REMOTE CONTROL DATA INPUT
4	SQCK	I/O	SUB CODE Q CLOCK
5			
6			
7	SUBQ	I	SUB CODE Q SIGNAL INPUT
8	PD0	O	KEY STROBE SIGNAL OUTPUT
9	PD1	O	
10	PD2	O	
11	PD3	O	
12	PC0	I	KEY RETURN SIGNAL INPUT
13	PC1	I	
14	PC2	I	
15	PC3	I	
16	PF0	I	
17	PF1	I	
18	LDIN	O	LOADING MOTOR FWD
19	LDOUT	O	LOADING MOTOR REV
20	CLSW	I	DISC TRAY CLOSE SWITCH
21	OPSW	I	DISC TRAY OPEN SWITCH
22	INSW	I	PICKUP IN SWITCH
23	LOK	I	LASER (FOCUS) OK SIGNAL INPUT
24	LSW	O	LASER ON/OFF CONTROL
25	GFS	I	FRAME SYNC LOCK SIGNAL INPUT
26	MUT	O	MUTE SIGNAL OUTPUT "H" MUTE ON
27	SENS	I	SENS SIGNAL INPUT FROM IC3
28	DATA	O	SERIAL DATA OUT
29	$\overline{\text{LT}}$	O	LATCH SIGNAL OUT
30	CLK	O	CLOCK SIGNAL OUT
31	$\overline{\text{RST}}$	I	RESET SIGNAL INPUT
32	GND	—	GND
33	S0	O	FLD SEGMENT DRIVER OUT
34	S1	O	
35	S2	O	
36	S3	O	
37	S4	O	
38	S5	O	
39	S6	O	
40	S7	O	
41 to 49			NOT USE
50	G7	O	FLD GRID DRIVER OUT
51	G6	O	
52	G5	O	
53	G4	O	
54	G3	O	
55	G2	O	
56	G1	O	
57	VP	I	FLD DRIVE POWER INPUT
58	—		NOT USE
59	SCOR	I	SUB CODE DETECTION SIGNAL INPUT
60	—		NOT USE
61	EXTAL	I	CLOCK INPUT
62	RST	I	RESET SIGNAL INPUT
63	SYNCR		NOT USE
64	VCC	I	+5V

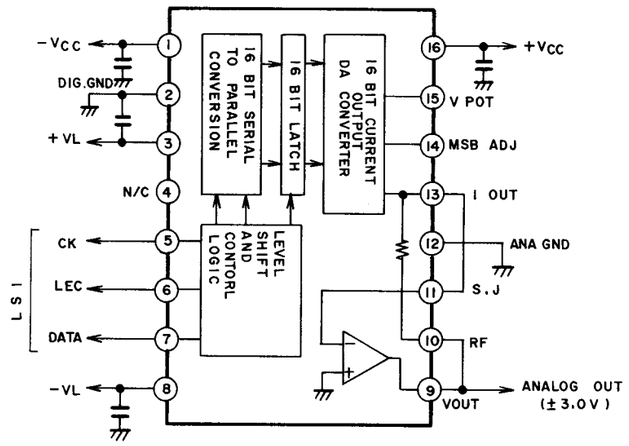
LC3517AS-15 16kBIT RAM



TRUTH TABLE

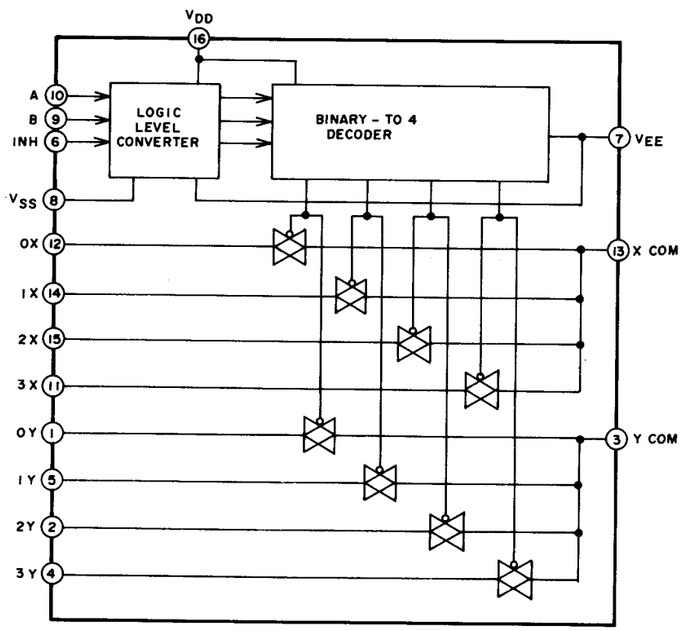
MODE	CE	OE	WE	I/O
READ CYCLE	L	L	H	DATA OUT
WRITE CYCLE	L	*	L	DATA IN
OUTPUT DISABLE	L	H	*	HIGH IMPEDANCE
INHIBIT	H	*	*	HIGH IMPEDANCE

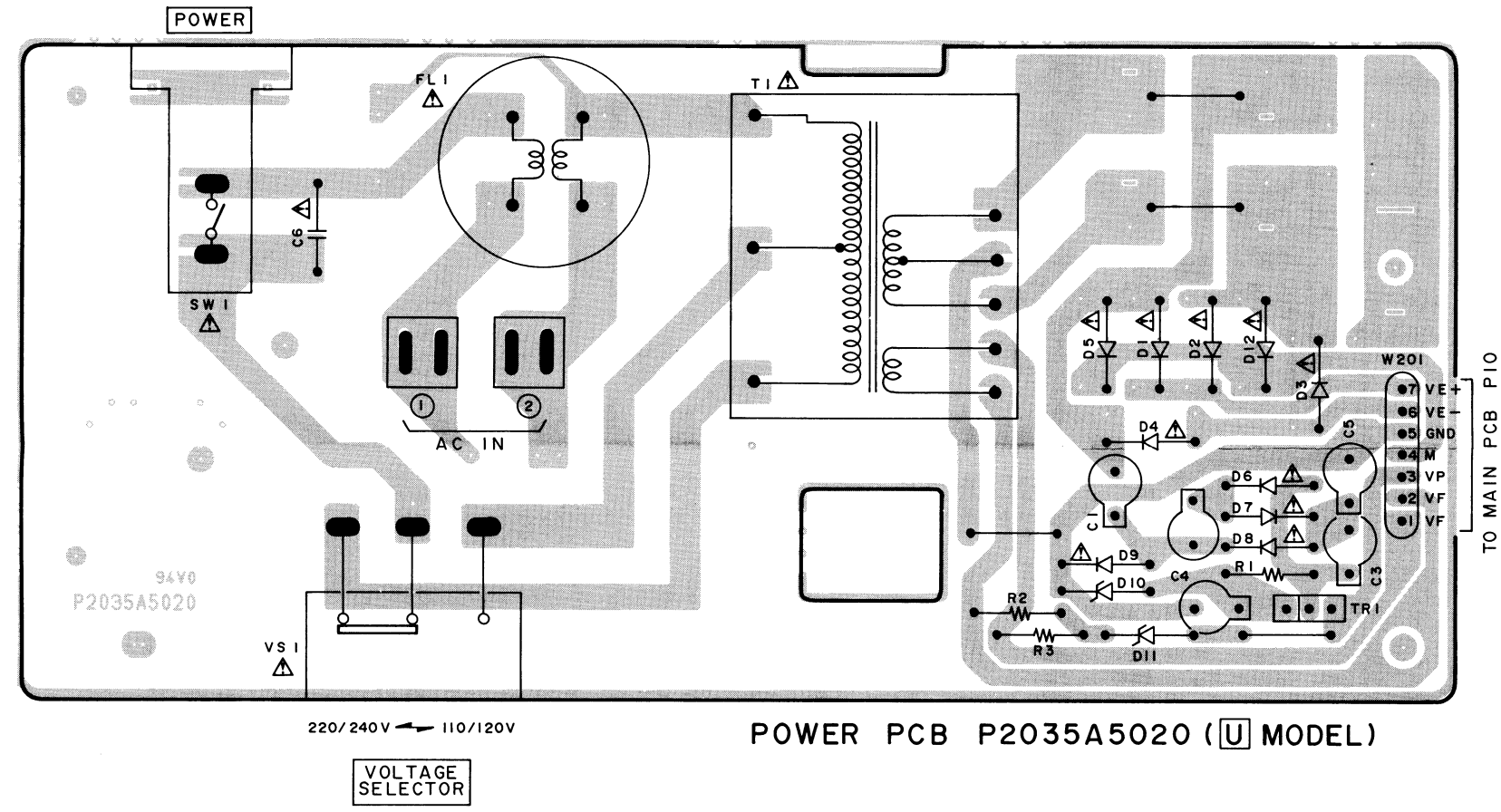
PCM-56P 16BIT D/A CONVERTER



PIN NO.	FUNCTION		PIN NO.	FUNCTION	
1	-Vcc	ANALOG ⊖ B	16	+Vcc	ANALOG ⊕ B
2	DIG GND	DEGITAL GND	15	VPOT	POTENTIAL METER
3	+VL	LOGIC ⊕ B	14	MSB ADJ	MSB ADJUSTMENT
4	NC	NO CONNECTION	13	Iout	I OUT
5	CK	CLOCK IN	12	ANA GND	ANALOG GND
6	LEC	LATCH ENABLE CONTROL IN	11	S.J	SUMMING JUNCTION
7	DATA	DATA IN	10	RF	FB REGISTER
8	-VL	LOGIC ⊖ B	9	Vout	V OUT

TC4052BP MULTI PLEXER

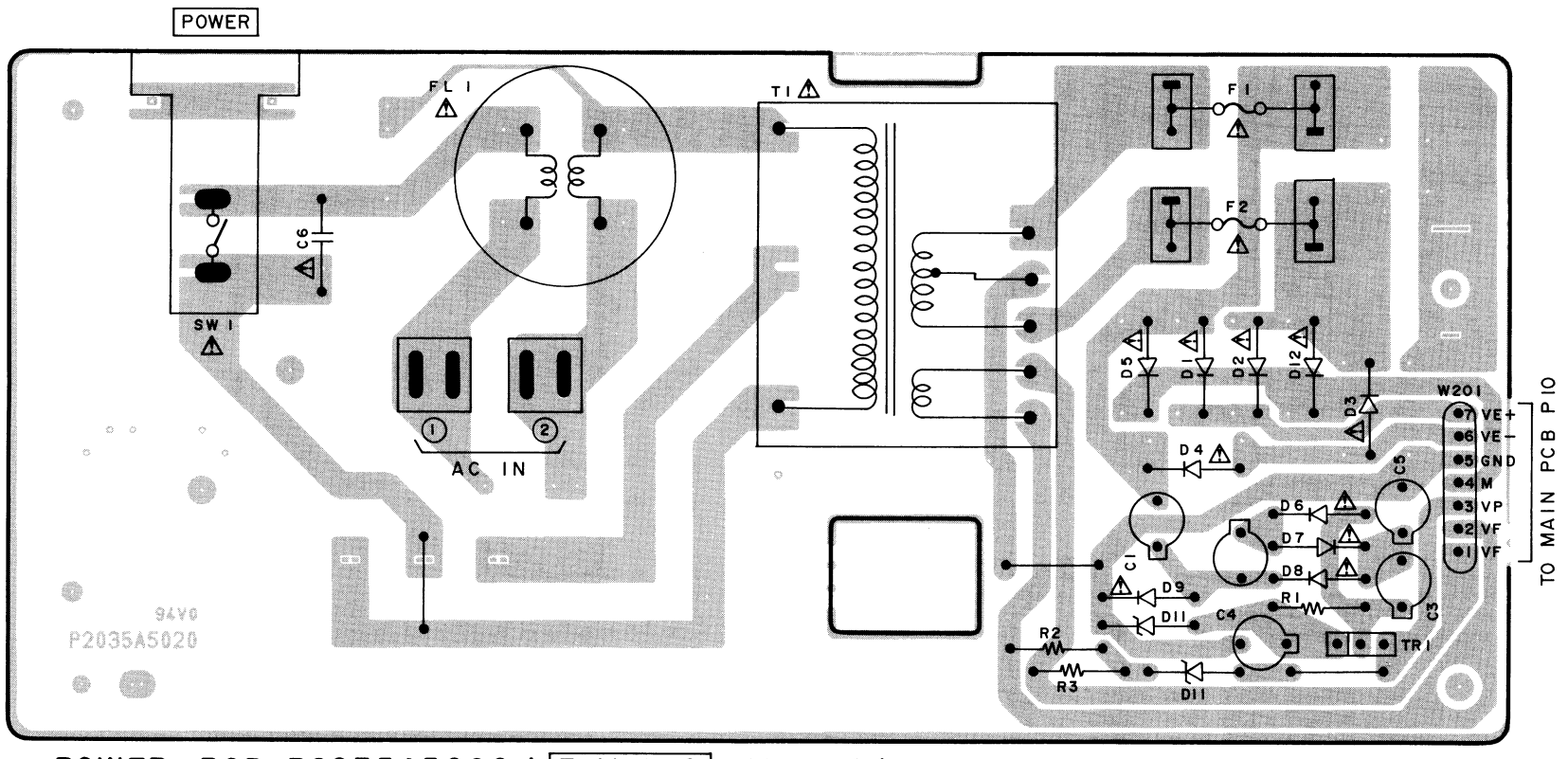




220/240V ◄► 110/120V

VOLTAGE SELECTOR

POWER PCB P2035A5020 (U MODEL)

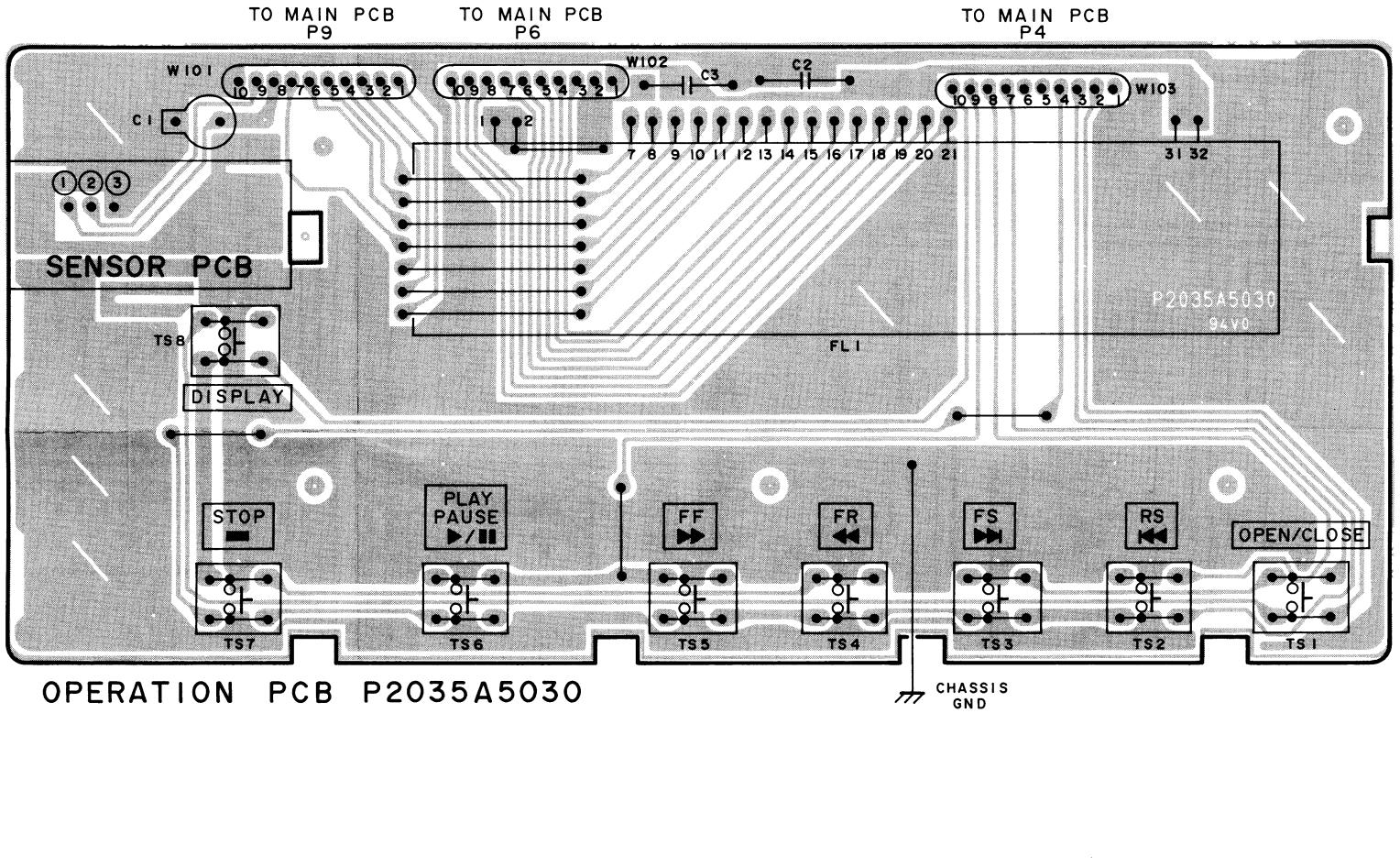


POWER PCB P2035A5020 (E,V,B,S MODELS)

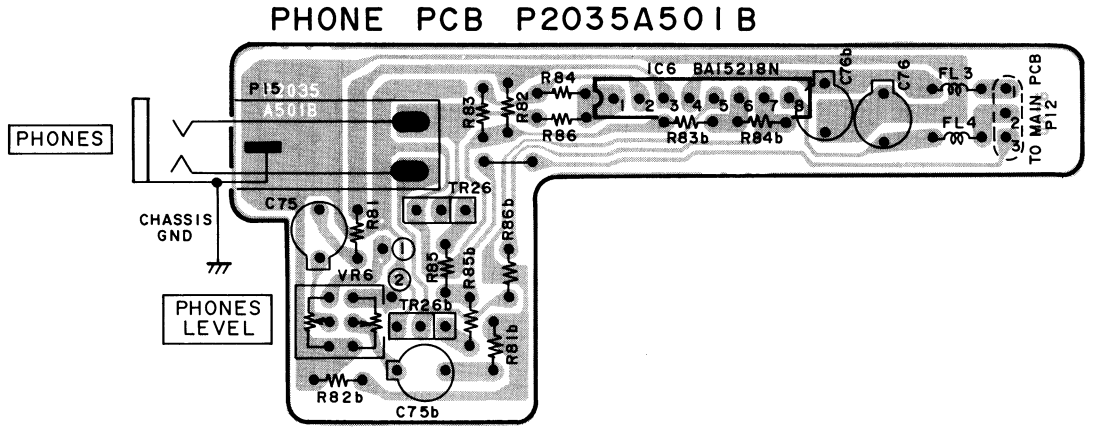
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CO
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH
RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAR
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PA

TO MAIN PCB P10



OPERATION PCB P2035A5030

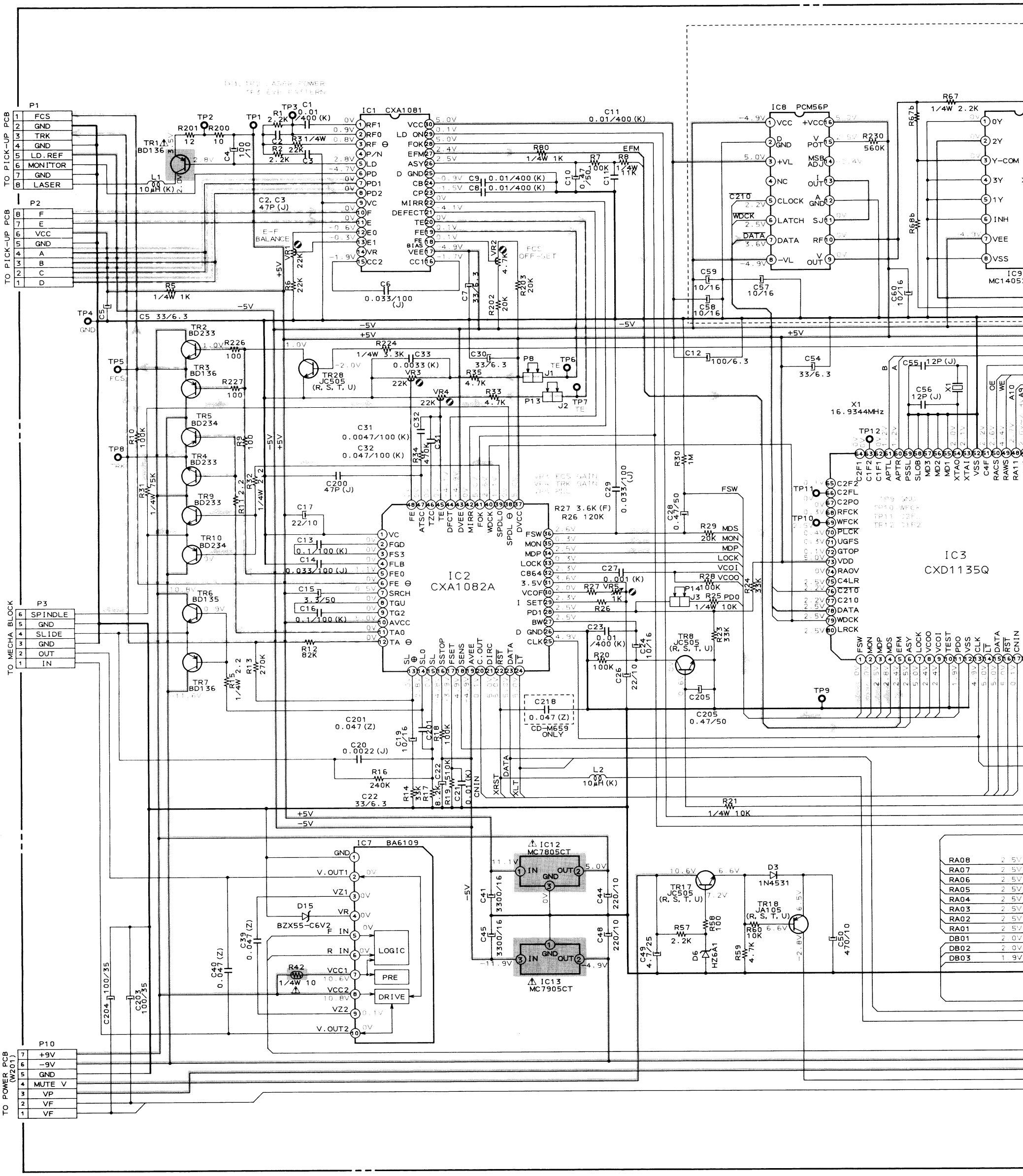


PHONE PCB P2035A501B

B
= NPN TRANSISTOR

S SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY,
AFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
DED PARTS

INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
TENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
CER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT



MAIN PCB P2035A501A

CROSS REFERENCE TABLE

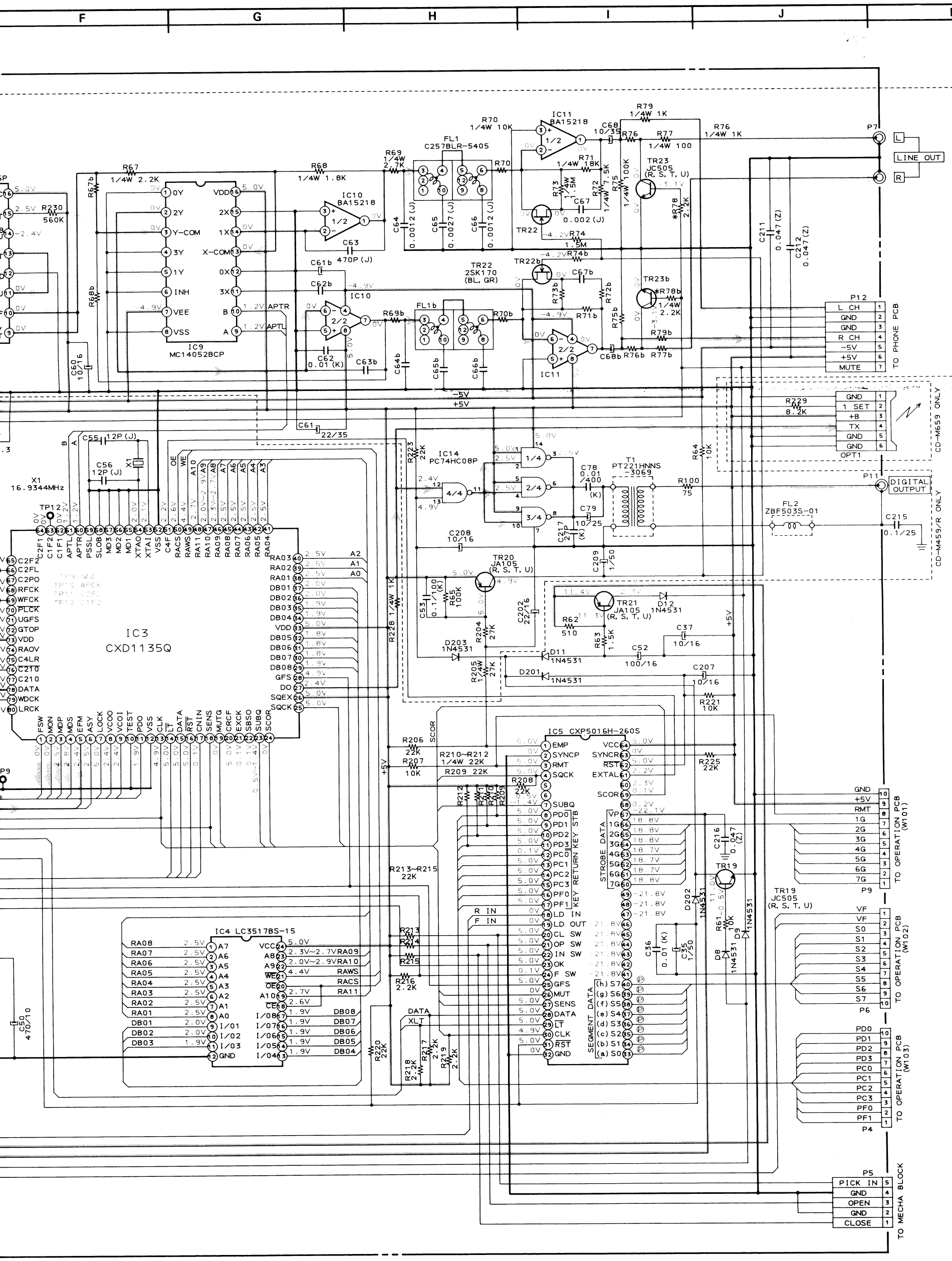
TRANSISTOR

Original Part	Equivalent Part	
Part Name	Part Name	Part No.
BD135	2SD863-V8	ET-200986
BD136	2SB764	ET-318237
BD233	2SD612K	ET-310148
BD234	2SB632K	ET-322598
JA105	2SA1317	ET-353899
JC505	2SC3330	ET-360067

ZENER DIODE

Original Part	Equivalent Part	
Part Name	Part Name	Part No.
BZX55 C6V2	HZ6 C2	ED-337265
BZX55 C7V5	HZ7 B3	ED-305706
BZX55 C9V1	HZ9B2L	ED-346541
BZX55 C22	HZ22-2	ED-329056

B (POWER SUPPLY) LINE
SIGNAL LINE
SPINDLE MOTOR SERVO LINE
SLIDE MOTOR SERVO LINE
TRACKING SERVO LINE
FOCUS SERVO LINE



NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV(M)

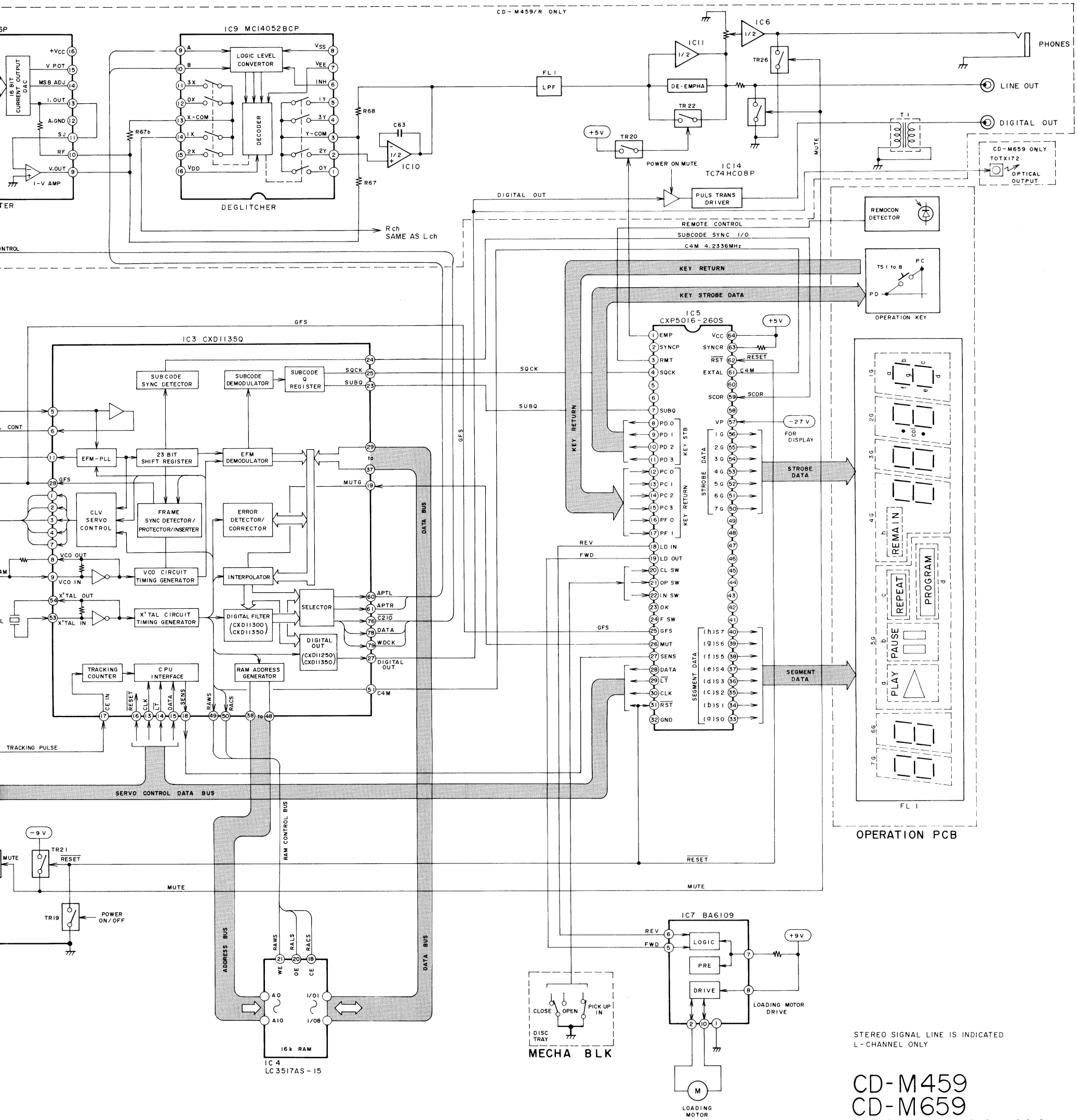
INDICATED VOLTAGE MEASURED BY DIGITAL VOLTMETER AT PLAY MODE.

WARNING: ⚠ AND ▒▒ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

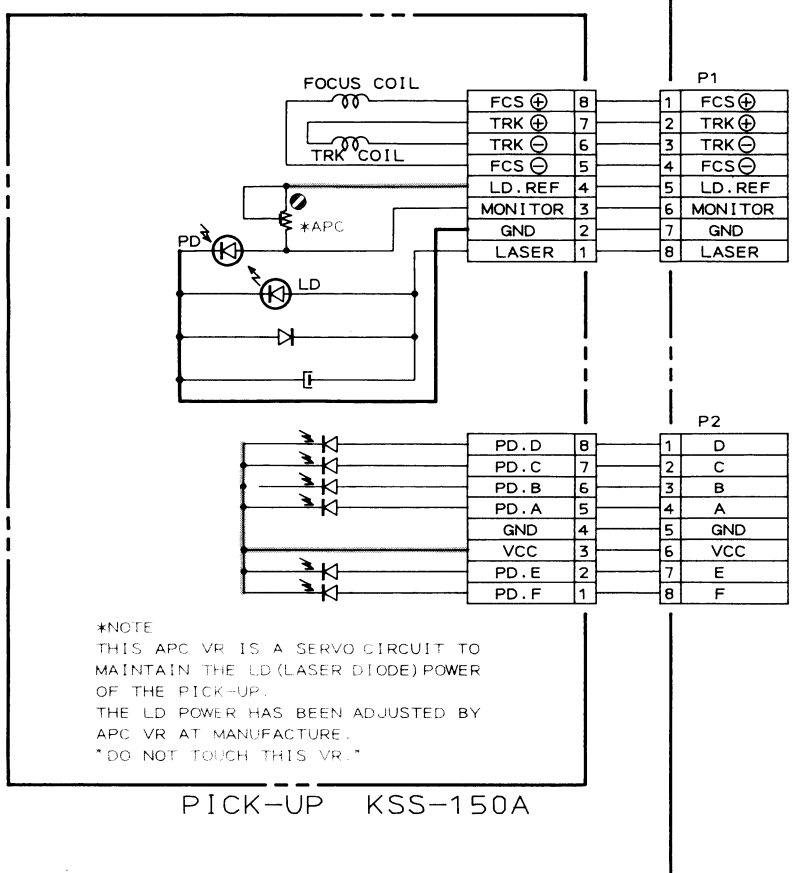
AVERTISSMENT: ⚠ ET ▒▒, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

CD-M459/R, CD-M659
MAIN PCB
SCHEMATIC DIAGRAM
NO.2-2 P203502M4

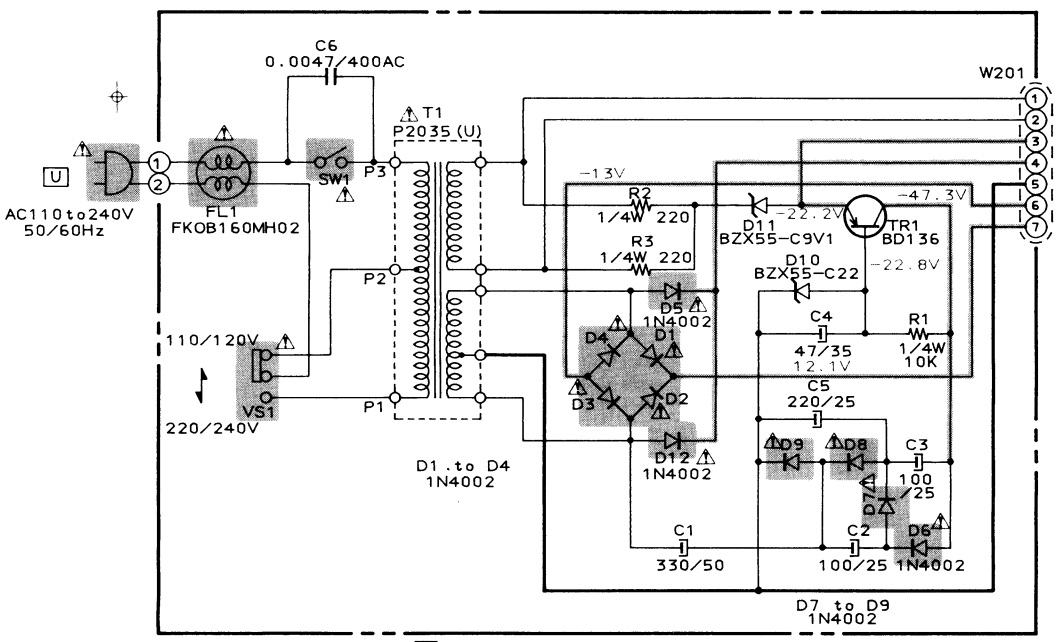
IC1 CXA1081
EYE PATTERN
PICK UP
TRI
LASER DRIVE
LD
PD
APC LD AMP
APC PD AMP
FOK AMP
FOCUS OK
EFM COMPARATOR
AUTO ASYMMETRY CONTROL AMP
RF I-V AMP
RF SUMMING AMP
A + C
B + D
RF I-V AMP
F I-V AMP
E I-V AMP
TRACKING ERROR AMP
FOCUS ERROR AMP
TRACKING ERROR
FOCUS ERROR
EF BALANCE
VR1
FOCUS COIL
TRACKING COIL
+5V
VR2 FOCUS OFF-SET
-5V
POWER PCB
TRI D6 to 11
-27V REG
FOR DISPLAY
+5V REG
+9V
-5V REG
-9V
POWER TRANS FORMER
D5, 12
RECT
TRI7, 18
POWER ON/OFF DETECTION
IC8 PCM56P
Vcc
D.GND
+VL
NC
CLOCK
LATCH
DATA
-VL
16 BIT SERIAL/ PARALLEL CONVERSION
16 BIT LATCH
LEVEL SHIFT CONTROL LOGIC
16 BIT CURRENT OUTPUT DAC
+Vcc
V POT
MSB ADJ
I.OUT
A.GND
SJ
RF
V.OUT
I-V AMP
D/A CONVERTER
D/A CONVERTER CONTROL
R67b
IC2 CXA1082A
CLV LPF
VCO
LOOP FILTER
3.5V REGULATOR
V → I
TTL → I²L
I²L DATA REGISTER
INPUT SHIFT REGISTER ADDRESS DECODER
SEQUENCER
OUTPUT DECODER
FSI to 4
TGI to 2
TMI to 7
PSI to 3
TRACKING PHASE COMPENSATION
FOCUS PHASE COMPENSATION
WINDOW COMPARATOR
BPF
SLIDE INV INPUT
SLIDE CONT
SPINDLE MOTOR DRIVE
SLIDE MOTOR DRIVE
FOCUS COIL DRIVE
TRACKING COIL DRIVE
FOCUS COIL MUTE
TRACKING CONT
SPINDLE MOTOR
SLIDE MOTOR
IC3 CX
SUBCODE SYNC DETECTOR
EFM
SLICE LEVEL CONT
EFM-PLL
23 BIT SHIFT REGISTER
CLV SERVO CONTROL BUS
GFS
CLV SERVO CONTROL
FRAME SYNC DETECTOR/ PROTECTOR/INSERTER
VCO OUT
VCO IN
8.64M
VCO CIRCUIT TIMING GENERATOR
X'TAL OUT
X'TAL IN
X'TAL
X'TAL CIRCUIT TIMING GENERATOR
TRACKING COUNTER
CPU INTERFACE
TRACKING PULSE
SERVO CONTROL DATA BUS
TR28
MUTE
-9V
TR21
RESET
TR19
POWER ON/OFF



CD-M459
CD-M659
BLOCK DIAGRAM
No. 871208B

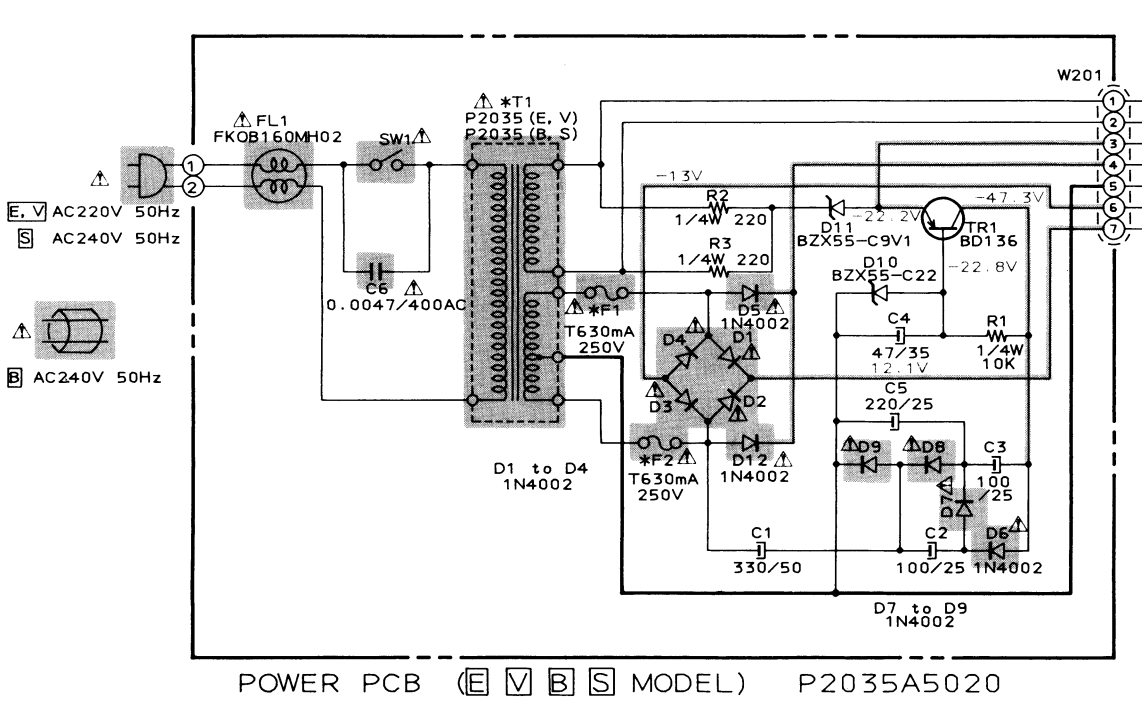


PICK-UP KSS-150A



POWER PCB (U MODEL) P2035A5020

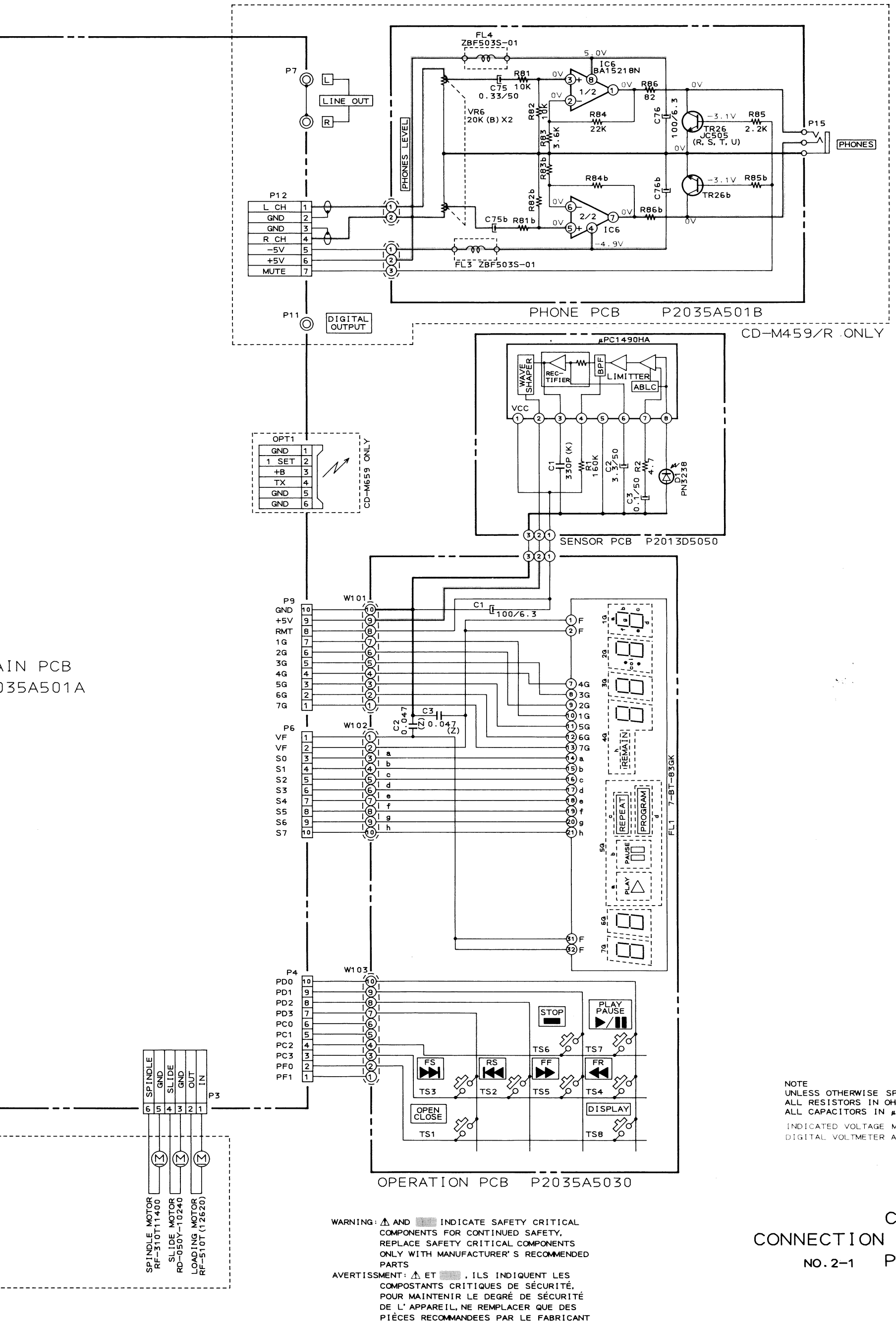
MAIN PCB
P2035A501A



POWER PCB (E V B S MODEL) P2035A5020

B (POWER SUPPLY) LINE

SIGNAL LINE



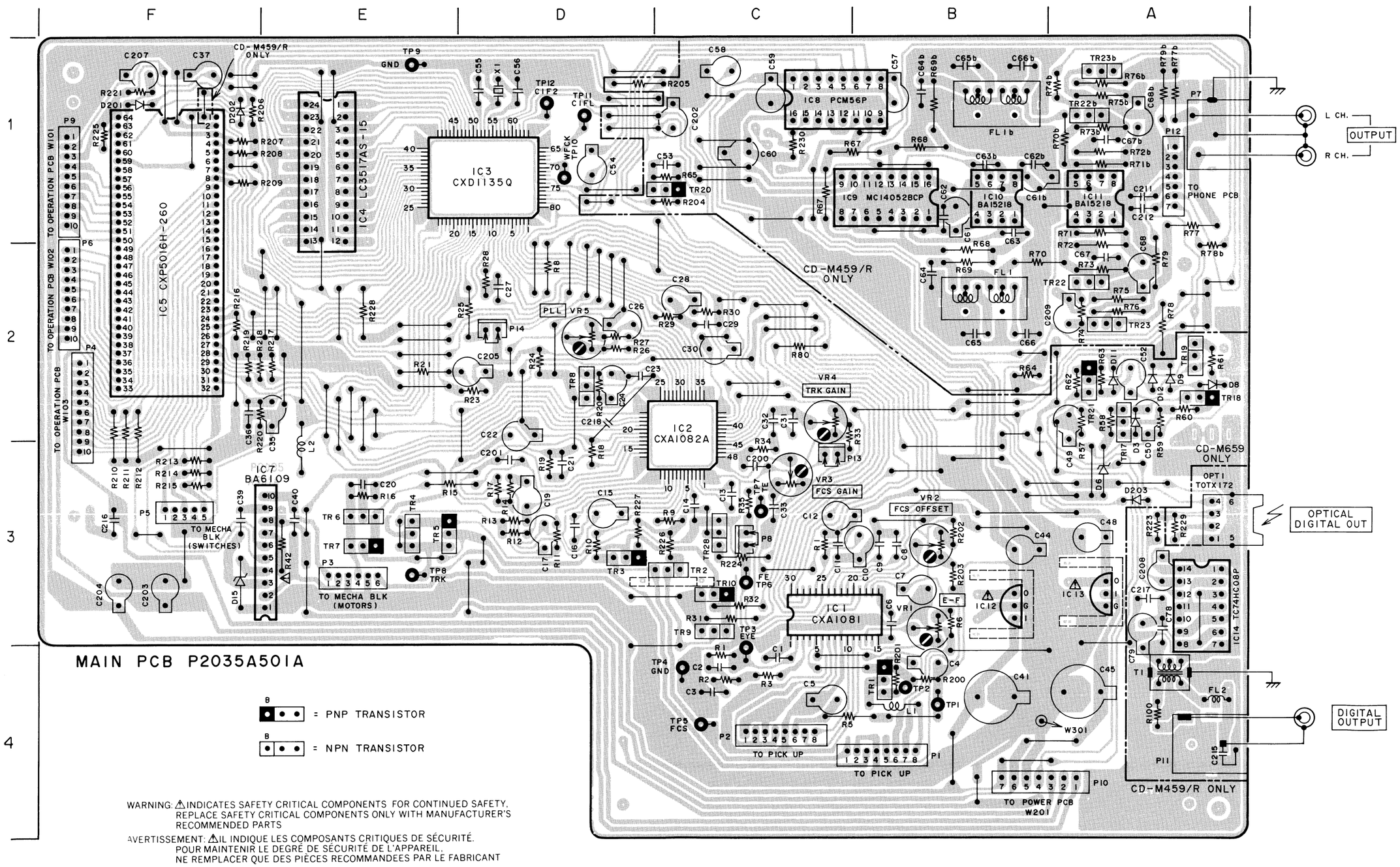
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN µF 50WV (M)

INDICATED VOLTAGE MEASURED BY DIGITAL VOLTMETER AT PLAYMODE.

WARNING: ⚠ AND [redacted] INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET [redacted], ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

CD-M659
CONNECTION DIAGRAM
NO. 2-1 P203501M
4



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AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT